

The National Locksmith[®]

October 2004
Volume 75
No. 10
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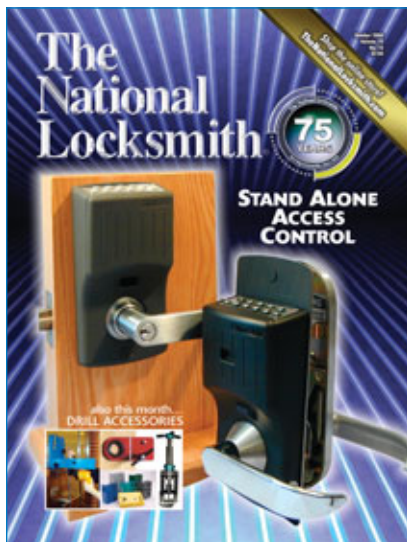


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On The Cover...



OSI's OM2000 quick adapter using the Schlage ND lockset and the Winfield mortise lock Quick Adapter are the latest additions to the product line.

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COMMENTARY



Have you bragged on your business lately?

John Samec came to visit us here at *The National Locksmith*. John is a locksmith in the Austin, TX area, and was born and raised in the Chicagoland area where he still has family, and where our headquarters are located. A couple of years ago at a convention, I met him and told John that next time he was in the area, he should drop by and visit us. (I offer the same to all of you. Just call ahead as John did.)

I enjoyed our visit and sent John home with an armful of what Dale Libby calls "Locksmith Wampum." Instead of knives and skins, in return for his visit, John took home NSO and NLAA newsletters, a book, and a TNL T Shirt. But he unwittingly left more than he took.

John told me something that has been cooking in my head since he left. So I decided to share it with you. Over the years, I have talked a lot in this column about marketing, and how the successful locksmith is not only a professional at his or her craft, but also needs to pay some attention to marketing, to stand out from the crowd. I believe in this concept so much that we now have Sara Probasco writing on the topic every other month in her new *Biz Wiz* column.

John told me that he works on cars, including most all of the transponder cars. He owns programming equipment, and has studied how to make keys for most of the locksmith programmable vehicles now on the road. That's a good thing, and a number of other locksmiths have done the same. But then John did something brilliant.

He decided to let people *know* about his readiness to work on these cars. He did it in two ways. First he visited a number of car dealers in his area, and spoke with the people in the shop. Often, these people become overwhelmed with the amount of transponder issues they confront, and

sometimes the client is angry about the extreme dealer charges.

John simply let the managers know that he works on transponders, and *they* requested from *him* that he leave them a stack of business cards. Now he gets calls from the dealers' customers when they hand out his cards. Second, John placed a small phone directory ad to let consumers know he works with "Smart Keys." He also gets calls directly from those customers. So good work John, and thanks for sharing your story. I consider this man to be a locksmith who is not only working, but also working "smart."

If you 'smith near Austin, give John a call in case you don't work on transponders. You might be able to trade calls with him for those jobs he doesn't do. The same holds true for other 'smiths around the country who can *market* the fact that you work with transponder keys.

And if you don't, then think about what services you *do* offer. Have you talked to and dropped business cards on anyone who can send *you* business?



Have questions? Want free technical help?
Free Locksmith Forums!

www.TheNationalLocksmith.com

Marc Goldberg
Publisher

Mango's Message

Disgruntled & Defeated

Dennis Miller from Greensburg, Indiana contacted me recently by sending me newspaper clippings from 2001, about his experience with the city council regarding the Decatur County Sheriff's department opening cars in lockout situations. Dennis conveyed to the city council that he lost one-third of his income due to a lack of business that the sheriff's department took with the lockouts they were performing. In Decatur County, the sheriffs department will unlock a car door for free, regardless of the situation.

Unfortunately, the city council said that there wasn't much the council could do to make the sheriff's department stop unlocking cars. *"We appropriate the money and the Sheriff spends it as he sees fit. The taxpayers pay for the sheriff's department and the department provides the service,"* said once council member. Needless to say, Dennis was defeated in his efforts.

Locked Out!

"I'm locked out!" she cried, with great dismay,
"I fear that I shall rue this day.
"Fear not," said friends, "we'll call the police—
A locksmith's price would surely fleece."
The cops arrived on wings of blue,
And there ensued a great to do.
They fished and pried, but all in vain,
They never made a single gain.
They tossed in the towel, but paused to say,
"It's best that you call Triple A."
Call she did, and tow trucks rolled.
The first man there was suave and bold.
"I'll pop that lock in nothing flat,
And you'll be on your way, and that'll be that."
Brave words indeed, but mostly heated air,
For a Corvette door can be quite a bear.
One frustrating hour more,
And the tow truck man said "Nevermore!"
"Call a locksmith!" rose a cry,
From expert gawkers standing by.
A smith did come, and saved the day,
And all present felt he'd earned his pay.
(Too bad it's not always this way)
He charged for opening, and the repairs to boot,
But his was hardly a pirate's loot.
The damage by others was quite extensive,
And the locksmith's repairs rightly expensive.
The lesson here is simple you see,
A locksmith's charge is a professional fee.
When would-be locksmith's get in trouble,
Don't be shocked if the pro's rates double.

J. Valentine

I called Dennis and he was a bit perturbed at me, claiming that he had called me about three years ago regarding this very issue, and that I was unwilling to help. Stating that in fact, I was in support of police opening cars at the time. This is in fact not true, but it was his perception.

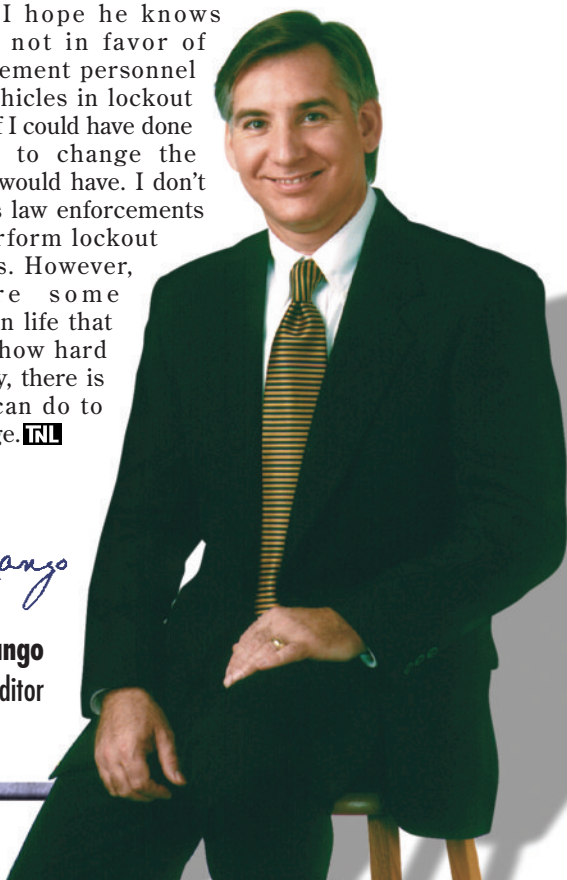
At the time I told him that there was little I could do to stop the Decatur County Sheriff's department from unlocking cars in lockout situations. Stating that after meeting with the city council and sheriff himself to present his case, if they still refused to change their policy, there would be little he, or I could do. This was obviously not the answer he wanted at the time. He just wanted the Sheriff's lockout activity to stop, but to this day (three years later) it hasn't.

This topic has been a point of contention with locksmiths for the past 50-years. It has never gone away. In many places it has gotten better, with more and more law enforcement departments refusing to perform lockout duty except in emergence situations.

Dennis sent me the "Locked Out!" poem that I once read many years ago, but I thought it was worth repeating. After a long conversation with him I hope he knows that I am not in favor of law enforcement personnel opening vehicles in lockout situations. If I could have done something to change the situation, I would have. I don't believe it is law enforcements duty to perform lockout procedures. However, there are some situations in life that no matter how hard one may try, there is little one can do to cause change. **TNL**

Greg Mango

Greg Mango
Editor



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MADRID, SPAIN — Future reports
only suggest at least an Mo-
reover took part in the Mo-
rally, though, and the
country's economic situation is
growing increasingly uncertain.

Purchase and
Install Before
Dec. 31, 2004



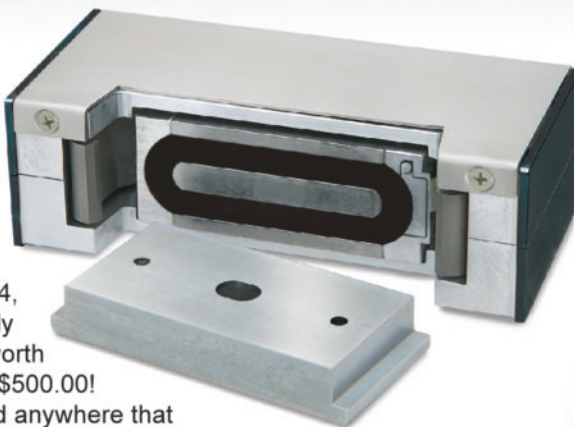
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LETTERS

Mark Anderson, 1953–2004

On August 15, 2004, at 6:00 PM, Mark Phillip Anderson, longtime member of the Greater Dallas Locksmith Association (now the ALNT), passed from this life to the next. He died of complications of Pancreatic Cancer. He is survived by his wife Carol of 32 years, a son Michael, a daughter Tonya, a sister, and two brothers. He was 50 years old. He was a locksmith for the City of Dallas.

These are the cold, dry statistics that one would expect in an obituary. They in no way do justice to the man. Mark Anderson was a hero. He was the quiet, hard-working type that makes up the fabric of our world. Without him, and others like him, the world as we know it would have fallen apart. He was the guy who did things. He was the one behind the scenes that everyone counted on. He shrank from the limelight, but could be counted on to make sure that the light was working for the benefit of others, and indeed was often the one directing the light.

Mark and I traveled to many industry meetings together and taught many classes together. Again, he did not want the spotlight, but rather just to help. Mark was a very talented carpenter and locksmith. His official classification for the City of Dallas was that of carpenter, but in reality and in practice, he was THE locksmith for the Dallas Municipal Government. He serviced some 900 buildings. He was a master of doors and door hardware. He worked for the City of Dallas for thirty some-odd years.

He was a real locksmith's locksmith. He loved the work and the industry so well that whenever he had a day off, he would go ride with some locksmith or work in their shop. For the last few years, more often than not, he would come to my shop. He loved safe work, and would actually take a day of vacation to come help open a particularly interesting safe. I used to kid him about taking a "business man's holiday" all the time.

Mark handled his illness with strength and grace in spite of great pain and discomfort. He never totally accepted that he would not get back to work. He fought a good fight as long as he could, again, without complaint. This year, by unanimous vote, Mark Anderson was selected to receive the highest honor that our association can bestow. At the July meeting, I had the honor to present him the Bill Reed Award. This Award goes to those who have given unselfishly of themselves, and by doing so, have made a profound impact on the Physical Security Industry. I know of no one that ever deserved it more than Mark Anderson. That meeting was the last industry related event that he attended. Because of his illness, he had to be carried into the meeting, but for those of us who carried him, it was a labor of love for someone that was very important to us. Typically, he was embarrassed by all the fuss, but was humble and graceful in his acceptance of our association's highest industry award.

Mark Anderson was a man small in stature. He was about 5'3" high, but he stood taller than ever I hope to reach. He was a locksmith. He was my best friend. He was my hero.

*C.D. Lipscomb, CML, CPS
Texas*

Want More Business?

During the day stop into places like Builders Square, Lowes, Menards, Wal-Mart, Sears, just about any large chain store that may cut keys and introduce yourself to the key maker. Tell them you will be glad to bail him out if they can't cut a particular key. These establishments have limited key duplicating capabilities and your services allow them the opportunity to recommend to their customer someone who can solve their problem.

I have Wal-Mart, Lowes and Meijers all sending me customers when they have a problem or just don't have the key blank.

*Brad Mackenzie
Ohio*

TNL



E-mail Your Views:
natilock@aol.com

Please include your first and last name.

The National Locksmith

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Attn: Editor

The National Locksmith is interested in your views. We do reserve the right to edit for clarity and length.

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A1's Magnum Pick Gun

A1's powerful Pick Gun (#44) features easy tension adjustment and a 5-year unconditional warranty. Attractively priced, this pick gun includes four tips and a tension wrench.

The pick gun can be easily disassembled for maintenance.



Architectural Control Systems, Inc Electric Cylindrical Lock



Architectural Control Systems, Inc. announces that their Series 1500 Electric Lock Modification is now UL Listed for the Schlage ND80 Cylindrical Lock.

Features:

- Available in Fail Safe or Fail Secure
- 24VAC/DC or 12VAC/DC
- UL Listed
- California State Fire Marshall Approved
- Request to Exit Switching Available

Models:

- C1510 Fail Safe (Power Lock)
- C1520 Fail Secure (Power Unlock)

Note: For the Request to Exit option add AE to the part number.

Corbin Russwin's DC6000 Door Closer

Corbin Russwin Architectural Hardware has introduced the DC6000 Series door closer that is ideal for high-use openings. The DC6000 Series is ideal for openings that must meet ADA requirements, such as schools, office buildings, health care facilities and retail complexes. This Grade 1 closer meets ANSI/BHMA A156.4 requirements and UL and UL10C positive pressure requirements for fire openings.

The cast iron body of the DC6000 is strong and durable, and to make the unit easier to adjust for optimum power setting, a new spring adjuster was added. Internal advantages include a chrome silicon wire, triple set for longer life, and new, improved closer oil that allows the closer to function well at temperature extremes and with reduced friction.

The DC6000 also offers a full array of security features. Captured valves and optional Torx® security screws help make the closer tamper resistant. In addition, self-drilling screws and a QUIK-INSTALL™ bracket make installation quick and easy. Retrofit plates allow for easy replacement of the 4040 or 4010 closers without modifying the door prep.



D&D Technologies Adjustable Gate Hinge

The new Tru-Close Mini-Multi Adjust hinges from D&D Technologies provide up to 2" of horizontal gate gap adjustment, with models for both square and round posts. The TCAMA2 model is ideal for extra wide gate gaps on vinyl, wood and some metal gates up to 55 lb. All models offer unprecedented 3-way adjustment: horizontal, vertical, plus Tru-Close's patented tension adjustment.

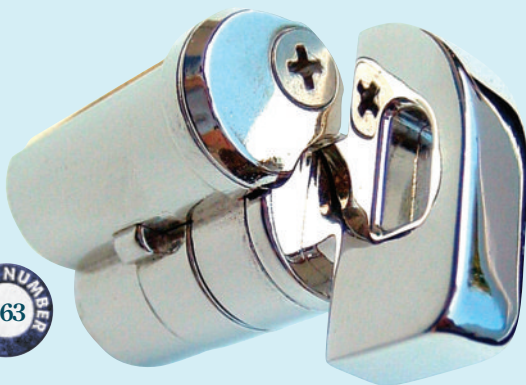


Fuller Bros. T-Core™

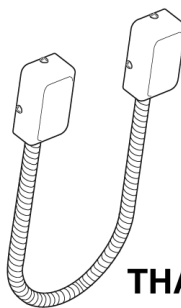
Fuller Bros. Lock, Inc. introduces the interchangeable core thumb-turn. T-Core™ was created to simplify the conversion of double cylinder locks to single cylinder operation. It will reduce labor costs associated with servicing complex mechanisms and installations traditionally requiring added manpower such as Herculte glass doors by eliminating the need to pull them down for conversion.

T-Core™ is also handy when an application calls for a longer mortise thumb-turn than distributors normally carry and ideal in the conversion of cabinet locks that no longer require keyed access.

T-Core™ has a nifty provision in the dual action handle so that it can conveniently attach to a key ring with the rest of your important service keys. So the next time a contractor asks you to leave him a "tryout" key to test newly installed mortise locks, hand him a T-Core™ instead. It won't be painful to your key system if it's lost. T-Core™ thumb-turns are compatible with all 6 & 7 pin SFIC cylinders including Best, Falcon and Arrow and are available now in chrome and brass finishes.



Armored Door Loops



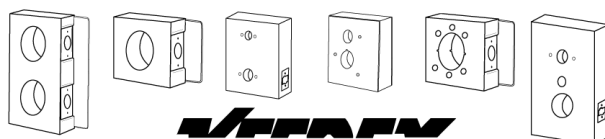
More sizes: 1/4" & 3/8".

More lengths: 18, 24", 30", 45" & 60".

More colors: Aluminum, Duro, Gold, Black & White.

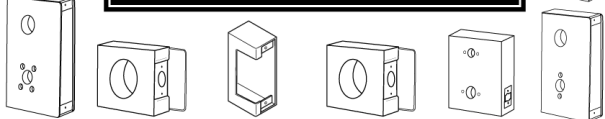
THAN ANY OTHER BRAND!

**Now Available: Keedex K-DS
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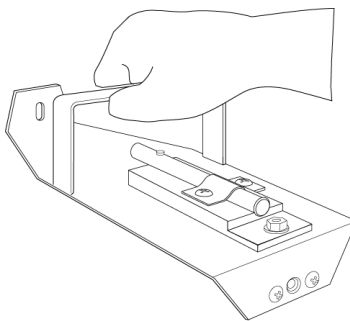


Weldable Gate Boxes

With more than eighty different models available, Keedex has a solution for your gate lock installation. Keedex Weldable Gate Boxes are available for cylindrical locks, deadbolts, mortise locks, push-button locks, lever locks, hotel locks, electric strikes and more.



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High Tech Tools LED Probe Light

High Tech Tools has just released a new probe light using a super bright white LED light. The advantages of LED lighting are numerous for one thing you never need too buy a bulb. The LED bulb has an 11-year life span and will run for numerous hours on one set of batteries. The light has a metal clad flexible shaft covered with a no scratch coating.



HPC's Flip-It

HPC's Flip-It (No. FIT-2) is an easy-to-use tool that will pay for itself many times over with its timesaving performance. The Flip-It is used after a lock has been picked in the wrong direction (intentionally or in error). It will flip the cylinder plug past the upper pins and save you the job of re-picking. The Flip-It works in both directions and also works well on disc tumbler locks.

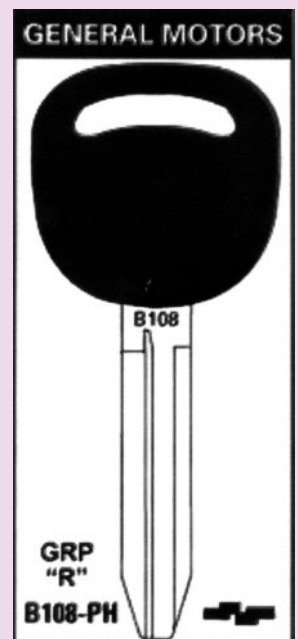
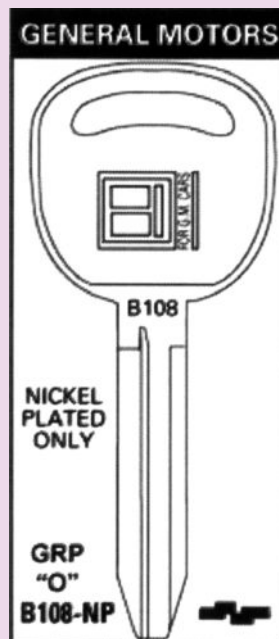
The Flip-It comes with many exclusive features. The 2-Pin Quick Lock/Release feature prevents over-winding in either direction. The ergonomic design of the knurled knobs makes it easy to pre-load the tool's spring action. Once the spring action is set, the Flip-It will flip the cylinder plug with the push of a thumb.

The Flip-It is a must for anyone who picks a lot of locks. It will be a valuable addition to any locksmith's toolbox.



Jet's New Keys

Jet Hardware's Y151-NS Universal Key for Chrysler is a key blank designed only for service and not for general duplication, and is available only in nickel silver. The company also has its B108-NP and B108-PH blanks to fit the 2004 Chevrolet Colorado and 2004 GMC Canyon.



La Gard's Multiple Door Safe Lock

La Gard's SMARTLINC multiple door safe lock provides the capability of managing up to five independent locks in a multi-compartment safe. A manager and as many as eight additional users can be assigned to each of up to five locks.

For added security, default lock codes have six digits (with an option to program the lock for seven-digit use), and the safe lock can be optionally equipped for a silent signal (duress) alarm. The installation of this option also allows the lock to be deactivated while the alarm system is still ON, with access denied until the alarm system has been turned OFF. Additionally, it can offer the capability of denying access remotely.

Each lock can be programmed for time-delayed access. The customized time delay can be programmed from one to 99 minutes, while the open period can be set for one to 19 minutes. Every operation, or program change, is recorded in the audit information.



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Marks USA Survivor Series with REX

Marks USA has developed a new access control product incorporating a request to exit switch in their Grade 1 "Survivor" series cylindrical lockset in both electrified and storeroom function. Activating the inside lever for egress activates the built in REX output providing a momentary signal for the access control REX input for alarm shunt during egress. This lockset is also available with an optional key sensor.



Peterson Manufacturing Serrated Tension Tools

The SST-3 is a totally new concept for tension tools. Consisting of a package of three tension tools (one single sided and two double side of different widths), the SST-3 will grip the sides of the cylinder keyway securing the tension tool in place. It is very difficult to move these tension tools once the turning tension action has begun. You can apply light or heavy tension to the tool while it stays secure even if you hit the tool with your picking action in raking the tumbler nest.

They will allow you better control of your tension and picking efforts while leaving lost and "flying" tension tools a thing of the past! Making the tools of tomorrow today!



Yale eBOSS

Yale Commercial Locks & Hardware has introduced Yale eBOSS, a cylindrical electrified digital keypad lockset designed to provide the industrial, commercial, residential and hospitality marketplace with a secure, reliable and moderately priced keyless entry.

The new e5496LN Series eBOSS (Electronic Battery Operated Security Solution) features patent-pending keypad blinders to keep unwanted eyes from viewing codes. In addition, eBOSS' patented Free Wheeling Lever provides both impact and vandal resistance, as well as a mechanical key override.

All programming is easily accomplished from the keypad utilizing LED guidance, and changing codes takes only seconds for an authorized user. The battery-operated, standalone product is motor-driven and is reliable for more than 100,000 cycles. In addition, a hard-wire option also is available.

The product's motorized Grade 1 cylindrical lock can be programmed for up to 94 users, and is available in secure, lockout and passage functions. The weather-resistant, ADA-compliant keypad also can be used in both interior and exterior environments.



Simplex® 1000 Series

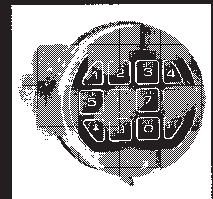
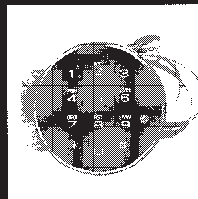
The Simplex 1000 Series mechanical push-button lock is now available with the popular lockout feature directly from the factory. Previously, the feature required ordering an add-on kit.

Lockout allows users to prevent combination entry by activating the lockout feature from the inside of the door. When lockout mode is active, entry is only possible via the lock's key override.

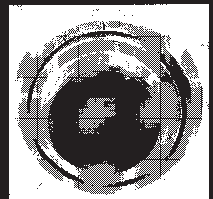
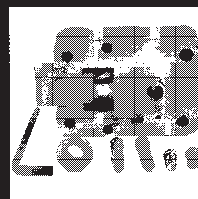
Lockout is available on all 1021 and 1041 key override models by simply adding the letters LO to existing part numbers.



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Mortise JIG

OVERALL ASSESSMENT of INJIG-MORT

The PRO-LOK 5 minute Mortise Jig is a time and labor saving device that takes the hard work out of fitting a mortise lock. It is manufactured to a high standard and is very easy to use. The mortises cut are automatically centered and parallel to the door surface and (provided the limits of cutter travel are carefully set) accurate results will follow. The jig is held on the edge of the door to suit normal lock height by two clamps that are positioned during initial setting-up on the door to limit vertical cutter travel. The cutter is locked in the end of the boring shaft which runs in a sliding aluminum housing, powered by a portable electric drill with a 1/2" chuck fitted (not included). An adjustable collar on the boring shaft sets the cutter travel into the door (mortise depth). This arrangement allows the mortise to be cut for the body of a lock, followed by a change of cutter and limit settings to cut the faceplate recess. The recess is then finished with a chisel, the mullion socket fitted in the usual manner, then apart from a few holes and furniture fittings, your job is done.

The jig is constructed around two 1/2" diameter steel guides. These are held in place, while in use, by two clamps - one fixed at the recommended lower end of the guides, while the other clamp can be slid along the guides in order to set the limits of travel of the aluminum housing which carries the boring shaft and cutter. A spring clip on one of the guides can be used to mark the position of the adjustable (upper) clamp for repetition work. The aluminum head is mounted on two hinged slides that move independently along the steel guides as the clamps are opened or closed. This ensures that the head bearing is always midway between the steel guides.

The 5/8" diameter boring shaft runs in sintered bronze "oiled for life" bearings in the aluminum housing. The cutters are inserted in a hexagonal drive socket at the end of the shaft and held firmly in place by a spring-loaded concentric ring that engages in an annular recess on the cutter shaft. In this manner, the cutter is positively driven with no endplay, ensuring that the final depth of cut is as accurate as the collar setting. The cutters can be quickly changed and sharpened locally to maintain their cutting efficiency. A range of cutters is available for wood and aluminum doors. The Mortise Jig is reasonably priced and should be an indispensable tool for all lock installers.

Safe Bits

WHAT IS SO SPECIAL ABOUT PRO-LOK®'s "BUTTER BITS"?

Would you imagine you could drill a 3/8" hole in a piece of hardplate from a Mosler TRTL30 in 38 seconds? Would you like to be able to use one bit and be able to drill 25 holes in a piece of GSA hardplate in only 7 minutes? You can now do this and more with the incredible Butter Bits from PRO-LOK.

You know that drilling hardplate is difficult and if you don't have the proper tools it may be impossible. It used to be that even if you had the right tools, to penetrate a safe effectively it required a level of skill and patience that very few locksmiths could develop. Now Butter Bits are changing safe work forever.

WHERE BUTTER BITS COME FROM

Pro-Lok has been working with an English manufacturer of safe bits to develop this unique bit which is both fast and durable. When Pro-Lok set out to develop a better bit, it was apparent that the best bits would come from an improvement of development of the practices of web thinning, worm pattern point, crankshaft drill point or split point grinding. All of these techniques have been used in general bit engineering for decades. In the past, however, these techniques have been used primarily on larger drills which were manufactured entirely from carbon or high speed steels. The application of these techniques to bits with Tungsten Carbide tips has been rare.

THE KEY TO THE DESIGN

Initial testing was performed using hard sandwich metals such as Maxalloy, solid High Speed Steel, and Hard Chrome Steel with a hardness of Rockwell 66C. After this testing, a particular tip style was chosen. We then explored various drill angles and sharpening methods. Further tests were done to determine which of the drill bit tip configurations was most effective over the widest range of applications.

The key to this bits success is the special tip design. This tip uses a unique negative rake angle and a shortened chisel edge that increases it's effectiveness and reduces tip failure. The results of all of this testing and design are PRO-LOK®'s Butter Bits, which will benefit the locksmith who encounters hardplate while drilling safes.

Drills hardplate just like butter!

**BUTTER
BITS**

Part #	Size
SB01	3/16" x 3-1/2"
SB02	3/16" x 6"
SB05	1/4" x 4"
SB06	1/4" x 6"
SB11	5/16" x 5"
SB12	5/16" x 8"
SB15	3/8" x 5"
SB16	3/8" x 8"
SB17	3/8" x 12"
SB20	1/2" x 6"
SB21	1/2" x 12"



Installation TEMPLATES

General Information

Pro-Lok's installation template series is designed to cut your installation time to a fraction of the traditional method of using paper templates and freehand drilling. The use of our templates will give you a more accurate and mistake free installation. The accuracy enjoyed by using these templates will save you additional time spent mounting the hardware. The elimination of hardware problems associated with inaccurate installations saves you "call backs" and makes for a satisfied customer.

The heart of our installation system is the "INCL Universal Clamp". All templates are designed to work with this INCL Universal Clamp.

The concept is that once you have purchased the INCL clamp, you can purchase templates at any time, as you need them, and use the same clamp. This system makes for fewer tools at a more economical price. The INCL is used to clamp all Pro-Lok Installation Templates to the door. The INCL is milled from solid Aluminum with a black Anodized finish. The INCL comes complete with a hardened bushing to drill latches & deadbolts and a knurled aluminum knob to tighten the clamp to the door.

Use of the INCL Clamp

The clamp is designed for 1-3/4" thick doors with a 2-3/4" backset. Optional accessories are available for additional backsets or door thickness if required.

The INCL Clamp is a simple tool that has few parts and is simple to use

- A** Tightening knob
- B** Door clamp
- C** Template cavity (with three #20 screws)
- D** Latching hole bushing

Set Up

1) Select the desired template & attach it to the INCL clamp with the (3) screws.

2) New Installations:

Clamp the template on the door at the desired height or line up the template with an existing latch hole in the door jamb.

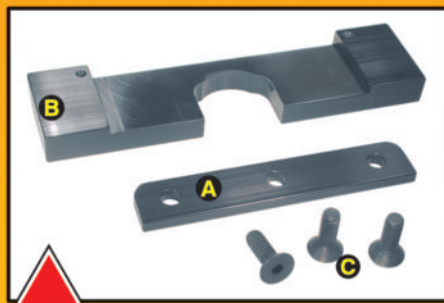
Existing Installations:

Line up the hole in the template with the existing center hole in the door.

3) Slide the clamp and template onto the door at the desired height of installation. Clamp the template to the door by tightening the knob on the INCL.

Note: The template should be on the outside face of the door. There is a clamp cavity in both the left side and right side of each template to accommodate both left and right handed doors.

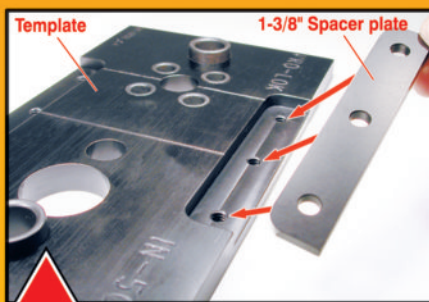
Optional Accessories



Part# INCLA

2-3/8" Backset and/or 1-3/8" door thickness adapter kit includes:

- A** 1-3/8" door thickness spacer plate
- B** 2-3/8" backset adapter plate
- C** 3 long screws



Using the INCLA to change the INCL clamp from the standard 1-3/4" door thickness to a 1-3/8" door thickness:

- 1) Place the 1-3/8" door thickness spacer plate in the clamp cavity located on your template.
- 2) Use the longer screws (provided) and attach the template to the clamp.



Using the INCLA to change the INCL clamp from the standard 2-3/4" backset to a 2-3/8" backset:

- 1) Simply place the 2-3/8" backset adapter plate on the clamp as shown.
- 2) Attach template to clamp.
- 3) Clamp the unit onto the door.

Circle 349 on Rapid Reply

Two New Products from OSI Security Devices

by Richard Allen Dickey



I first wrote about OSI in the October 2000 issue of *The National Locksmith*. Their latest, greatest product of the time was the OM 2000. It combined electronic access control with a commercial grade 1 lockset.

In April of 2003, I wrote about the OP 2000 which used proximity technology (HID) instead of a magnetic card. In that article, the OP 2000 was adapted to an exit device. It was also the first mention of a Quick Adapter.

What's a Quick Adapter? Well, it is an OM or an OP 100, 300, 500 or 2000, that is supplied without the lock chassis. The idea is to use existing locks in your facility so you only have to add the electronics.

Today I will cover two new additions to the OSI family of security devices. One is the trusted OM or OP 2000 that has been adapted to use the new Schlage "D" series cylindrical lock, designated the "ND". The other product is the mortise "Quick Adapter" that will work with a Winfield mortise lock.

I am sure that some of you are aware that Schlage took their "D" series lockset and made a change. Actually it was a major change from the pre 2004 D series. Things look a lot different inside and I want to show you some of it.

To start with, the OM 2000 with the Schlage ND lockset (see photos 1-2) looks like the older OM 2000 with a D series lockset installed. When you start to take things apart you will see right away that something doesn't look right (see photo 3-5).



1. Here is the OM2000 using the Schlage ND grade 1 lockset.



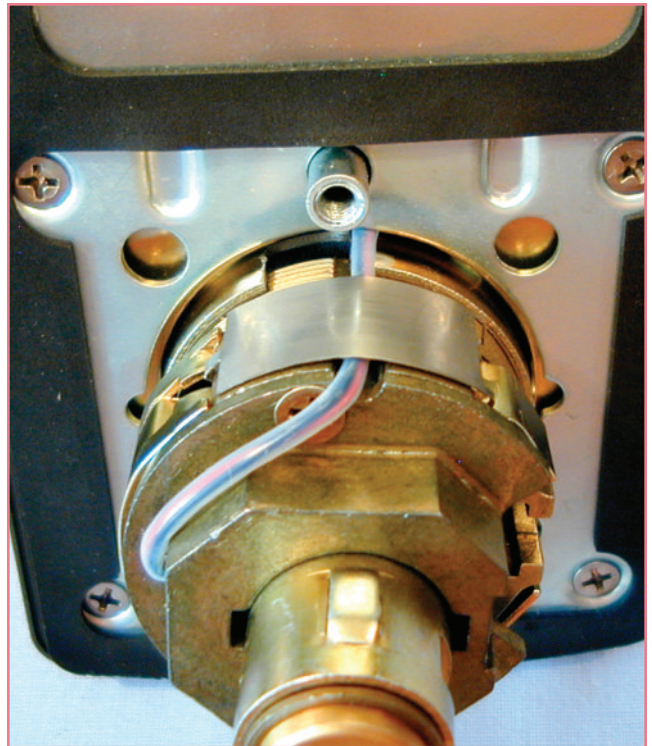
2. The ND looks like the D until it starts to come apart.



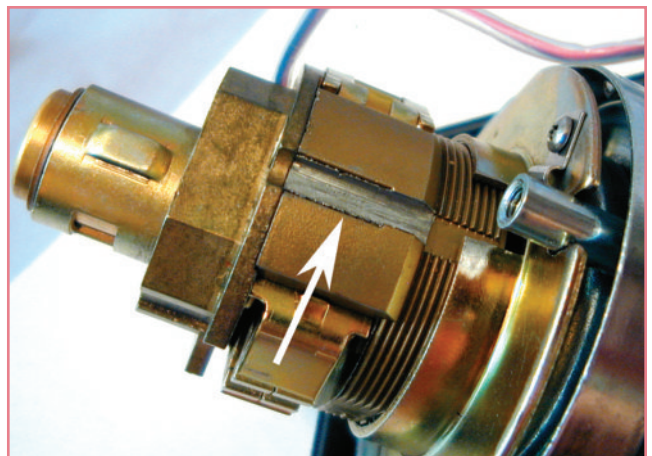
3. With the inside lever and rose removed, you start to see a hint of change.



4. When the lever spring housing is removed, things begin to look strange.



5. The chassis for the ND looks very different from the old D series chassis.

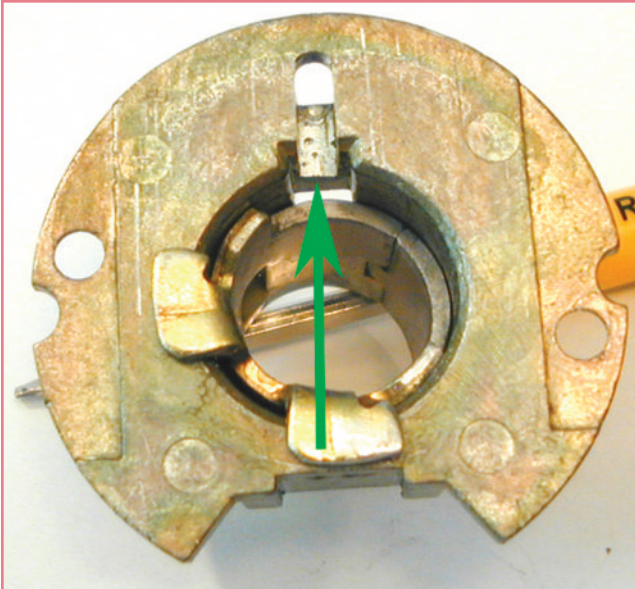


6. A groove in the chassis has been milled to allow the motor wire to pass.

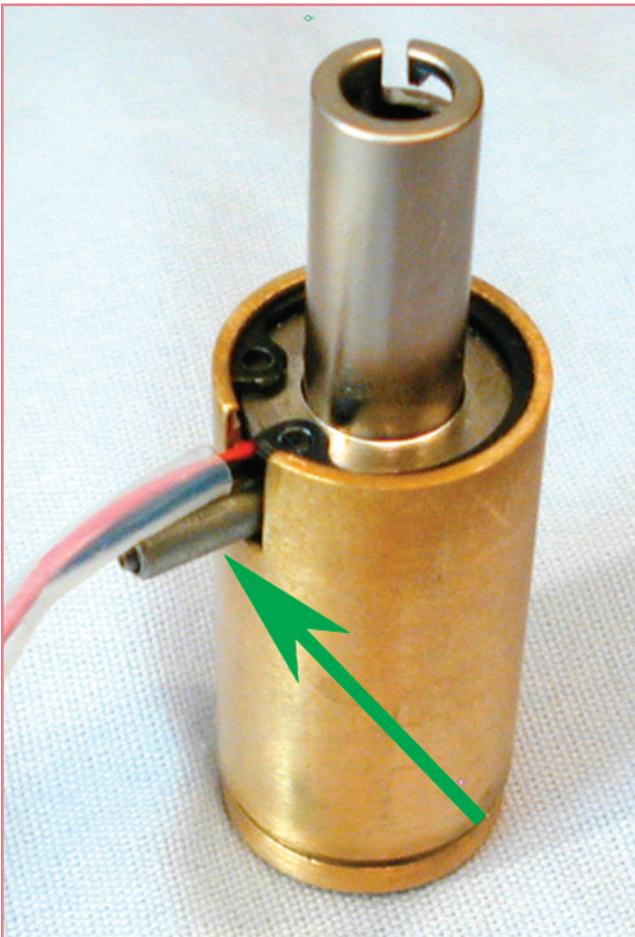


7. Here is a good view of the new ND chassis.

A lot of additional milling had to be done at OSI to electrify the ND. To start with a slot has to be milled into the chassis to allow clearance for the motor wire to pass (*see photo 6*). A slot is made on both sides of the chassis to allow for field changing of the handing.



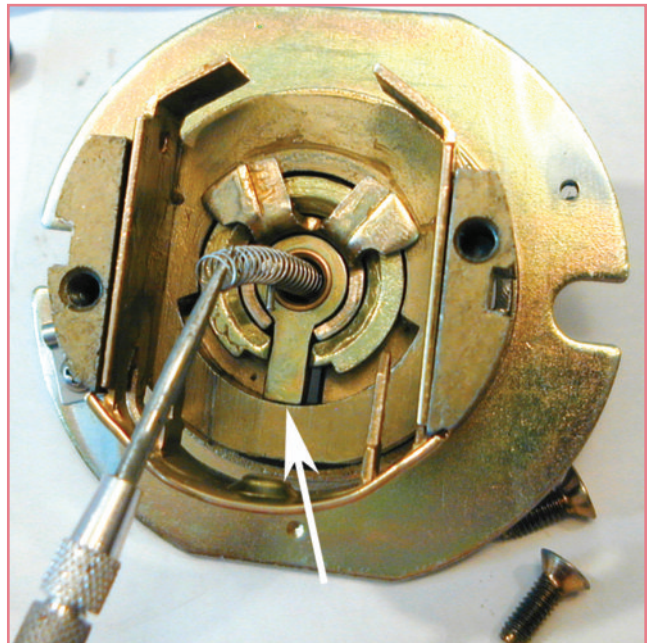
8. Milling is required on the inside of the chassis to provide a passage for the motor wire and a place for the motor roll pin to rest.



9. Here is a good look at the motor roll pin and wire.



10. This is the actuator that is moved when the motor is activated.



11. This is another view of the actuator inside the chassis.



12. The inside hardware for the mortise Quick Adapter.

Continued on page 22

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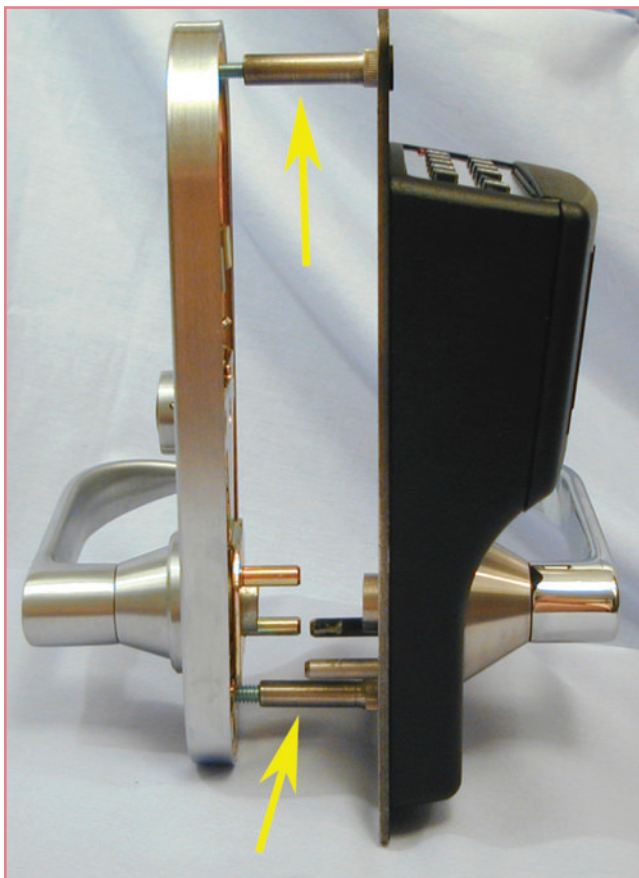


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With the cover plate removed, the chassis and outside lever will easily slide out of the electronics housing. This photo also gives you a good look at the ND chassis (*see photo 7*).



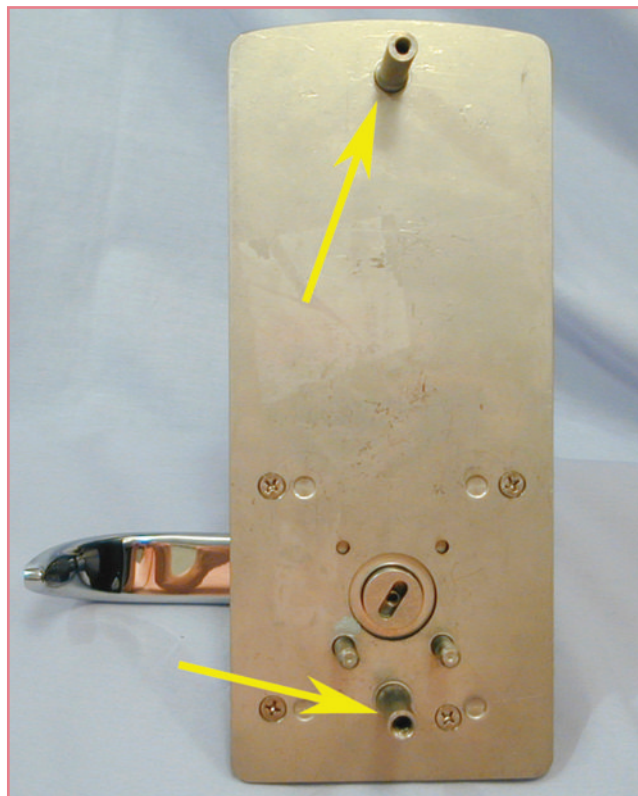
13. This is the mortise Quick Adapter that works with existing Winfield mortise locks.



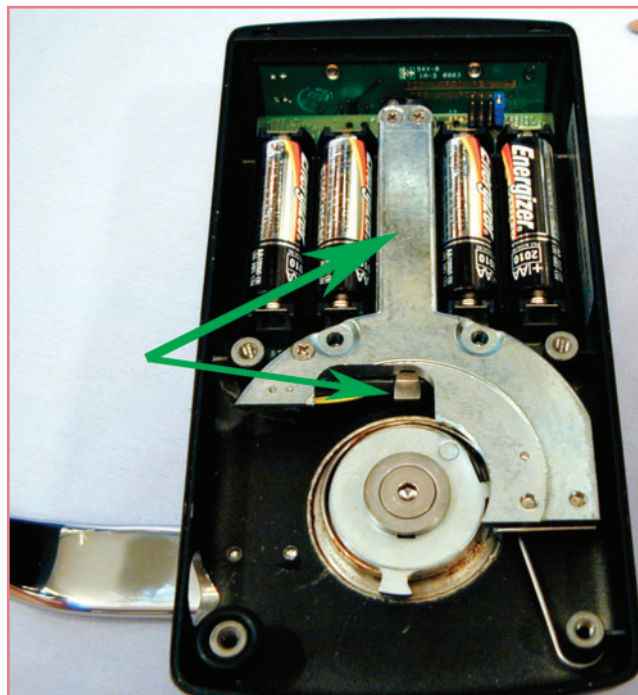
14. The old mounting holes are reused by the Quick Adapter.

More milling is done on part of the chassis to allow the motor wire to pass and provide a place for the motor roll pin to rest (*see photos 8-9*). The roll pin just keeps the motor from trying to spin inside the chassis when power is applied.

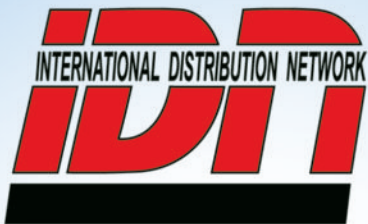
When the motor is activated, it pulls or pushes an actuator that either engages the outside lever or disengages the outside lever (*see photos 10-11*).



15. Another view of the mounting plate.



16. The motor assembly on the Quick Adapter is nothing like what you would find in a cylindrical lockset.



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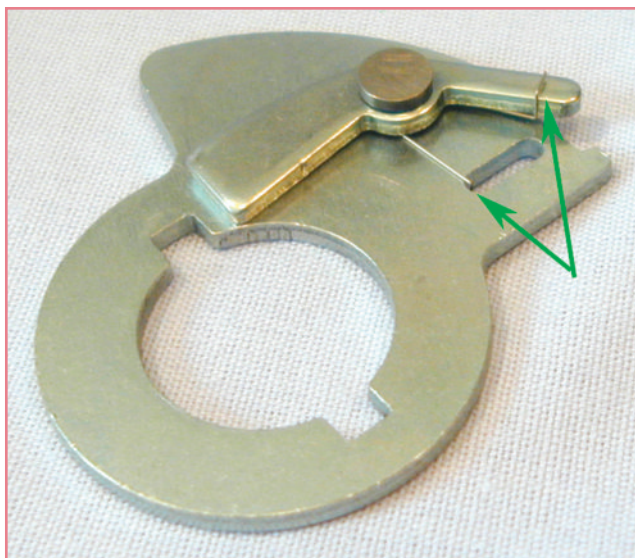


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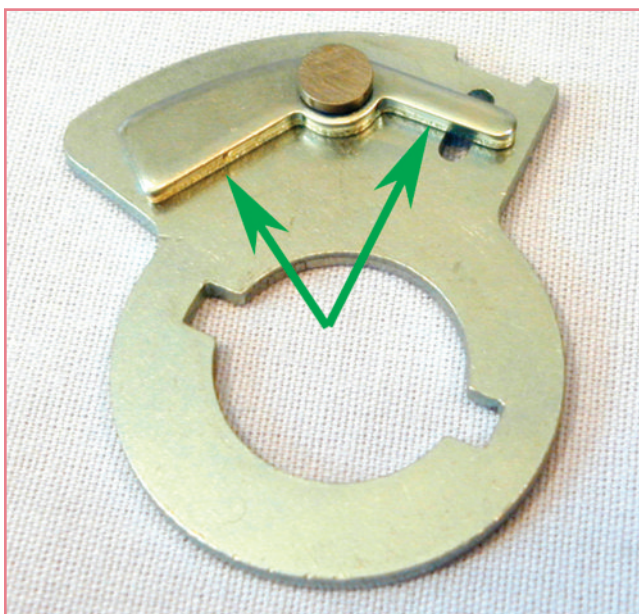
Circle 323 on Rapid Reply



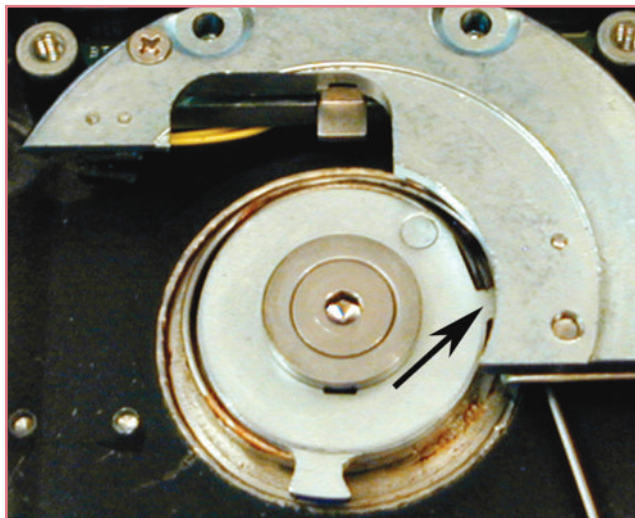
17. The actuator slides into a notch in the locking plate.



19. When the motor unit raises the actuator, a small spring lifts the end of the lever and ensures the other end of the lever will contact the drive plate assembly, if rotated.



18. On the back side of the locking plate there is a lever that is also held down by the actuator.



20. Here is a look at the drive plate assembly. It is connected directly to the outside lever.

As you can see, there are a lot of changes in the Schlage ND and a lot of development work was done by OSI to be sure that things worked as advertised. Now let's take a look at that mortise Quick Adapter!

Mortise Quick Adapter

The Quick Adapter for the Winfield mortise lockset is really an easy upgrade. They are easy to install, no modifications to perform on the chassis (aside from switching to passage function) and have a very interesting story behind them.

A few years ago, a government agency installed thousands of what they thought was the answer to all of their problems. It consisted of a mortise lock and some electronics to control access. As it turned out,

the Winfield mortise lock was great, but the electronic portion needed greater capabilities.

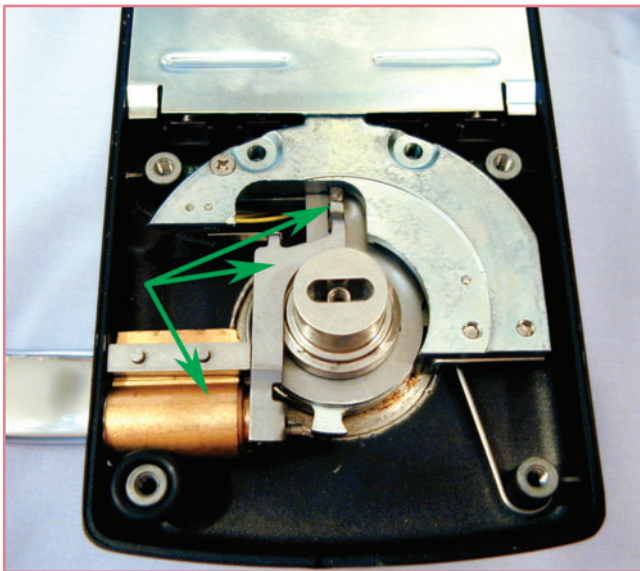
Now, if you are the guy that just bought thousands of electronic locks that needed greater capabilities what would you do to rectify the situation, buy all new locks? Well, in this case, OSI was called in to save the day.

It was determined that the Winfield mortise lock was doing a wonderful job. The inside escutcheon and lever were also working just fine (*see photo 12*). It was the stuff on the outside of the door that needed to be replaced.

With this knowledge, OSI created their first mortise Quick Adapter for a replacement (*see photo 13*). The Quick adapter used the same mounting holes as the original hardware did. This made replacement extremely easy (*see photos 14-15*).

The secret to the Quick Adapter is inside the same housing that holds the electronics. There is an assembly that consists of a motor drive unit, with an actuator on the end (*see photo 16*).

The actuator will engage a notch in a small locking plate, locking the assembly in place (*see photo 17*). At the same time, a small lever on the back side of the locking plate is held down (*see photo 18*).



21. The key bypass will lift the actuator just like the motor would when a proper code is entered.

When the actuator is lifted by the motor, the locking plate is free to rotate. This also allows the lever to rise under spring power (*see photo 19*) so an extension from the drive plate assembly will hit the lever on the locking plate if the outside lever is turned (*see photo 20*). When the locking plate rotates, the spindle driver also rotates, unlocking the lock.

If a key override is ordered, turning the key will lift a long lever, which in turn lifts the actuator just as the motor would (*see photo 21*). With the actuator lifted, the outside lever is engaged and the lock can be opened.

As you would expect, these new products use the same software and programming techniques as the other products available from OSI. There is a list of specs a mile long that are listed in other OSI articles that I have done in the past. I also talk about programming in those articles.

For more information on the available products from OSI Security Devices, give Rick a call at 619-628-1000. Their web site is omnilock.com. Rick loves to be called at home for information (like I have), so here is his home phone number! Just kidding. Circle 300 on rapid Reply. **INL**



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S4 03

YEAR: 2004 -

LINKAGE: HORIZONTAL

PICK: CCW DSO HIGH SEC.

TOOL: AO34
"MCOT-Narrow Tool"

AUDI

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PREFERRED OPENING METHOD
This model was redesigned for 2004. There was no 2003 production model (gap year). This model has cable linkage on all doors.

1. Insert a Pump Wedge at 8" from the rear edge of the window glass of the front passenger door. Inflate wedge.
2. Insert an AO34 "MCOT-Narrow Tool" at 12" from the front edge of the window glass, tip facing forward. (Photo 2)
3. Lower the AO34 into the door cavity. Rotate the tool beneath the bottom edge of the window glass. Deflate wedge.
4. Lift the tool, gradually working the tip of the tool into the vehicle interior. Rotate the tool 45° counter-clockwise and position the tip of the tool on top of the electric lock-unlock button. (Photo 3)
5. Push the electric lock-unlock button to unlock the door.



ALTERNATE OPENING METHOD

1. Insert a wedge at 3" and a wedge at 11" from the front edge of window glass of the rear passenger door.
2. Insert an AO35 "MCOT-Wide Tool" at 9" from the front edge of the window glass, tip facing forward.
3. Lower the AO35 into the door cavity and rotate it beneath the bottom edge of the window glass. Remove the wedges.
4. Lift the tool, gradually working the tip of the tool into the vehicle interior. Rotate the tool counter-clockwise and position the tip of the tool behind the inside pull handle. (Photo 4)
5. Rotate the pull handle rearward to unlock the door.

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Civic 09

YEAR: 2003 -

LINKAGE: HORIZONTAL

PICK: CCW

TOOL: AO-34

"MCOT-Narrow Tool"

HONDA

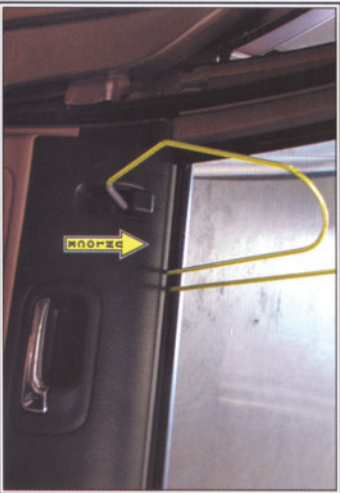
PREFERRED OPENING METHOD

This 4 door model was redesigned in 2003. This model has cable linkage. The Civic Hybrid opens the same way.

1. Insert a Pump Wedge at 11" from the front edge of the window glass of the rear passenger door. Inflate wedge.
2. Insert an AO34 "MCOT-Narrow Tool" at 7" from the front edge of the window glass, tip facing forward. (Photo 2)



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3. Lower the AO34 into the door cavity. Rotate the tool beneath the bottom edge of the window glass. Deflate wedge.
4. Lift the tool, gradually working the tip of the tool into the vehicle interior. Rotate the tool 45° counter-clockwise and position the tip of the tool under the manual lock-unlock button. (Photo 3)
5. Lift the lock-unlock button to unlock the door.

ALTERNATE OPENING METHOD

1. Insert a Pump Wedge at 10" from the rear edge of the window glass of the front driver's door. Inflate wedge.
2. Insert an AO34 "MCOT-Narrow Tool" at 6" from the front edge of the window glass, tip facing forward.
3. Lower the AO34 into the door cavity. Rotate the tool beneath the bottom edge of the window glass. Deflate wedge.
4. Lift the tool, gradually working the tip of the tool into the vehicle interior. Rotate the tool



- 75° clockwise and position the tip of the tool under the electric lock-unlock button. (Photo 4)
5. Lift the electric lock-unlock button to unlock the door.



Bravada 03

YEAR: 2002 -

LINKAGE: HORIZONTAL

PICK: CW

TOOL: AO-39

"Double Slide Tool"

OLDSMOBILE

PREFERRED OPENING METHOD

This model was redesigned in 2002. This model opens the same as the Chevrolet TrailBlazer and GMC Envoy.

1. Insert a Pump Wedge 11" from the rear edge of the window glass of the front passenger door. Inflate wedge.
2. Insert an inspection light into the door cavity at 8" from the rear edge of the window glass and identify the 2 net covered angled horizontal rods located about 15" below the top of the door frame.



©2002 PRO-LOK® CAR OPENING



3. Insert the long end of an AO39 "Double Slide Tool" at 5" from the rear edge of the window glass, tip facing rearward. (Photo 2)
4. Lower the AO39 14" into the door cavity. Rotate the tool 45° clockwise. Lower the tool until the tip of the tool makes contact with the lower horizontal rod. Position the tip of the tool under the lower horizontal rod. Twist the tool counter-clockwise to bind the rod. (Photo 3)
5. Slide the horizontal rod forward to unlock the door.

ALTERNATE OPENING METHOD

1. Insert a Pump Wedge at 9" from the rear edge of the window glass of the front passenger door. Inflate wedge.
2. Insert an AO34 "MCOT-Narrow Tool" at 17" from the rear edge of the window glass, tip facing forward.
3. Lower the AO34 15" into the door cavity and rotate it beneath the bottom edge of the window glass. Deflate wedge.
4. Lift the tool, gradually working the tip of the tool into the vehicle interior. Rotate the tool



- 90° counter-clockwise and position the tip of the tool in front of the inside lock-unlock button. (Photo 4)
5. Rotate the lock-unlock button rearward to unlock the door.

BIZ

Know Your Customers



by Sara Probasco

So, you'd like to increase sales without noticeably increasing costs, would you? Believe it or not, it's possible to do just that.

When's the last time you had a really slow day? What did you do, kick back and catch a little snooze time in your swivel chair? Play a couple hundred computer games or forward email jokes to your friends? Maybe you stared at the unpaid bills and chewed what was left of your fingernails.

What results do you suppose you'd be seeing today, if you'd spent that time working on a prime customer list?

Perido's Law says, "20% of your customers generate 80% of your business." I don't have a clue who Perido is or was. But I do know this: If you want to succeed in business, Perido's Law is a whole lot better one to remember than Murphy's.

The chance that you know each and every customer who uses your services is probably slim to none, unless your business is very small, or you have an exceptional memory for names and faces. But do you at least know who your prime customers are—the ones who make up the 20%?

You should. They're the ones paying your rent and putting food on your table.

I challenge you to keep track of every one of your customers for one year. You may only do it once, but once you do it, you could decide it's worth continuing.

Start by entering on each sales ticket the customer's full name, address, phone number, date of birth, and any other pertinent information you can get. (If you're not using sales tickets for *all* your sales, start now—at least for the one year you're tracking customers. You need to know the exact volume of revenue your business is generating.) Ask to see customer's driver's license. A lot of the information you need will be there. In fact, make them show you *two* photo-IDs. Why should the airlines have all the fun?

If they balk, tell them it's a new security requirement designed to eliminate terrorism and that you'll need to verify the information every time you sell them security-related service or merchandise. You don't have to tell them *whose* requirement it is.

Create a master file by listing each customer alphabetically in a large, loose-leaf notebook or in your computer. Then, every evening, before you go home, enter each sale of the day under the individual customer's name. By the end of the year, you'll be able to see exactly how much sales volume each one brought to you throughout the year.

Sure, it will take some time and effort to do this, but who said success was easy!

So, what is this supposed to do for you? First, it will show you how many people do business with you in a year's time. For some, this information will be very encouraging; for others, it may prove disheartening. Either way, it will be enlightening for most of you.

Second, you will be able to quickly identify and track the 20% because they're generating 80% of your business income. You can't afford to lose a single one of them. Once you know who they are, cultivate them. Bend over backwards to keep them happy. If you lose even one through dissatisfaction, business closure, relocation, death—any reason whatsoever—your money-making "machine" will begin to misfire. Then you'd better be scrounging to find a quick replacement customer.

So what if none (or few) of your customers stand out as comprising that all-important 20%? Then you're either already on Easy Street (so why are you reading this article?) or you *really* have your work cut out for you!

Maybe you need to strengthen your customer base by specifically seeking out customers potential 20%ers and adding them to your "stable." Next time you have a slow

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Continued from page 30

day, if you're current on your prime customer sales entries, grab a stack of business cards and go door to door, meeting other business persons and welcoming those who are new to your town. Then go to the local Grab and Gobble Café for a cup of coffee with the locals. You may be surprised at the number of folks that will say, "You know, I've been meaning to call you. I've got this lock that..." and the next

thing you know, you've got an afternoon filled with service calls and a bunch of new customers to add to your list.

Maybe you need to build into your existing customer base a deeper sense of loyalty, trust, and personal attention. How's your Positively Outrageous Service coming along? (If you missed that article, check past BizWiz articles.) Are you striving to do for your customers what they are either unwilling or unable to do for themselves?

Given the choice, people will give their business to folks they like. In addition to giving them the best service around, work harder at being their friend. When you see an article about a customer's accomplishments or something noteworthy one of his kids has done, clip it out and mail it to him with a little note saying, "Congratulations. Thought you might like an extra clipping to share with family or for your scrapbook."

Make it a habit to send out Birthday cards routinely to the 20%ers (You got their birth date from their driver's license, remember?) and sympathy cards, when appropriate. When invited, attend their children's weddings (at least the receptions), and send a card of congratulation to the grandparents, when the stork makes a delivery. You don't have to do these things entirely yourself, but see that somebody in your business does.

Make yourself and your business visible to your customers in a friendly, caring way—yes, even to that hard-nosed school superintendent or hospital administrator. They won't forget your thoughtful gesture. What's more, they'll remember you the next time they or their friends and associates need a locksmith.

Now, quit yawning and start figuring out who *your* 20%ers are!

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In today's competitive environment, the value of distribution cannot be underestimated, nor the function eliminated. A lock manufactured in California is worthless to the customer in Miami who needs to lock his door tonight. In order to be of value to the Miami customer, the lock must be in Miami today.

The customer in Miami must know where to go to obtain the

lock. In order to have the lock in Miami, some entity had to expect a customer in Miami to order it. This entity had to place an order to the factory for it. After the factory ships it, someone had to receive it in a warehouse. Someone had to pay for it. Someone had to ship or deliver the lock to the customer. Someone had to bill the customer. Someone had to collect from the customer.

Within this process, there are many implied activities.

Let's look at each of these activities individually.

The Customer In Miami Must Know Where To Purchase The Lock:

This indicates that there must be some sales and marketing activity performed. There must have been some advertising or a sales person made a presentation (marketing). At the very least, there had to be sales assistance—someone who took the order from the customer. Training was required so that the sales person (sales) would know how to handle the transaction (order entry) and that the product would meet the customer's expectations.

To Have The Lock In Miami, Some Entity Had To Expect A Customer To Order It:

This requires knowledge of the market area or that a dealer system exists which orders this product on a regular basis (inventory).

The Entity Had To Place A Factory Order:

This would indicate that there is a physical facility from which a purchaser (purchasing) issues a purchase order. This purchaser must also be trained in processes and on product.

After The Factory Ships It, Someone Must Receive It In A Warehouse:

There must be a brick and mortar warehouse with trained employees to receive and inventory product, product which was ordered in anticipation of a customer's needs (warehousing). These employees must also be trained in processes and procedures.

Someone Had To Pay For It:

Shipping documents must be matched against invoices, which are then entered into an accounts payable ledger. Payment must be sent to the manufacturer (accounts

The Function of Distribution

by

SHDA
Security Hardware Distributors Association

payable). Those involved in this process must also be well-trained.

Someone Had To Ship or Deliver The Lock To The Customer:

Back to the brick and mortar warehouse, the order must be picked, packed, and shipped or delivered in some manner to the customer who needs it.

Someone Had To Bill The Customer:

The picking or shipping ticket must be turned into an invoice, which is mailed to the customer and posted on the customer's account (accounts receivable).

Someone Had To Collect From The Customer:

Even if the customer just mails the check every month, which some don't, the check still has to be posted to the customer's account and deposited into the bank. The customer who doesn't pay on time must be pursued until payment is received (collections).

There are hundreds and hundreds of transactions like this taking place simultaneously every day in our industry. There is a manufacturer making a product, which he expects to sell. There is a customer, somewhere, who wants it. The process of getting the product to the ultimate user is called distribution. It makes no difference who does it, the function still exists.

One of the major costs of distribution is the human resources function. That is, the hiring, training, and maintenance of a workforce to perform all of the highlighted processes and tasks. Another is the cost of the technology needed in today's market to make these processes more efficient and thereby less costly. Included in this is, not only the cost of computer hardware and software for running the

business, but also telephone systems, postage machines, website, direct customer access, and so on. The National Association of Wholesaler-Distributors estimates the cost of holding inventory alone at approximately two and one half percent per month.

A distributor's broad line of products enhances its value by offering customers a single source for all products.

Distributors provide varying values to different manufacturers based on the function the manufacturer requires from them. For example, if a manufacturer only wants a distributor to fill the pipeline, which means the manufacturer will perform all of the marketing and sales functions, and distributors pick, pack, bill, and collect, that is one thing. (Pull thru) However, if a distributor is to be a crusader, that is, introducing products, marketing,

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advertising, selling, as well as picking, packing, shipping, billing, and collecting, that is another thing. (Push thru) All distributors function in one of these manners. Rewards to the distributor should be based on functions it performs for the manufacturer.

Due to the inherent differences in what constitutes service for each manufacturer, let's look closely at one service which all distributors provide which is a benefit for all manufacturers.

It's not a sexy service nor is it a service you go out of your way to promote in print. But, it is a cornerstone service that influences brand preference and makes or breaks relationships with customers. It is the handling of return goods.

Simply put, a return good is any product that is taken back because it did not meet the expectations of the customer. As distributors, we have the responsibility of soothing,

solving, and selling. We soothe the frustrated customer, solve his immediate problem dealing with the product in his possession, and then sell him something that will meet his expectations. We track return goods; we track them with a vengeance! Why? They cost us money! They cost the entire channel money! They tell us a lot about ourselves, our customers and about the manufacturer. They pinpoint exactly what we do and don't pay attention to in our businesses.

Half of all returned goods are for manufacturer related activities, the other half relates to the activities of the distributor, the customer and the shipping company. Manufacturer related activities include product defects, mismarked products, missing parts, products with wrong parts, or damaged product due to inadequate packaging. The processes used in these transactions require as much training and cost as much or more than the original sale.

The economies of scale and the efficiencies of specializing in just the distribution of products play a large role in reducing the costs of the distribution function. We market, sell, take orders, inventory, purchase, handle financial transactions and deliver product.

Once again, the product on the shipping dock in California is worthless to the customer in Miami who needs it. The most efficient way of getting the product there is through the classic distribution system which has functioned so well for many years!

For more information on the Security Hardware Distributors Association SHDA contact: Patricia Lilly at: (215) 564-3484; E-mail: shda@fermley.com; Web: shda.org. 

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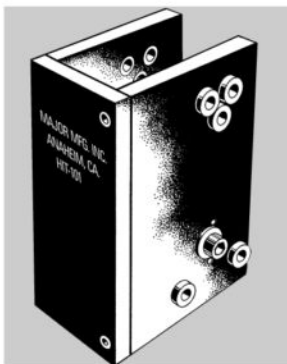


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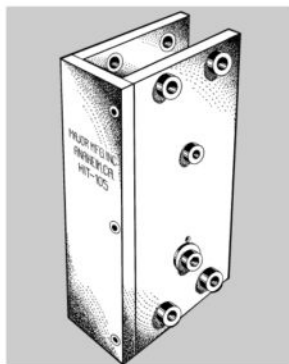
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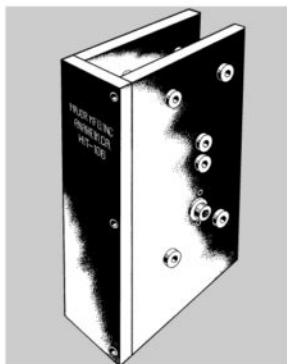
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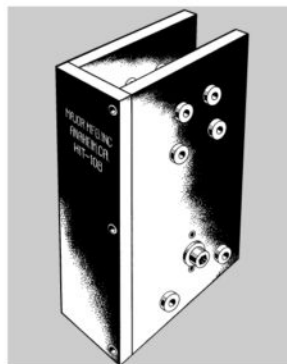
HIT-101
For Unican 6000



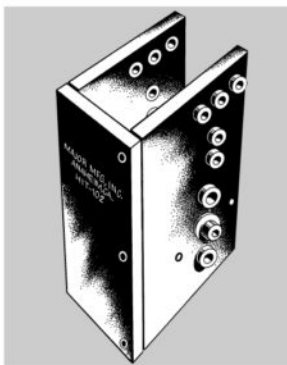
HIT-105
For Mas-Hamilton
PowerLever



HIT-106
For Unican Solitaire Prox

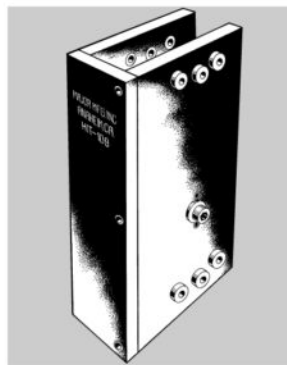


HIT-108
For Unican EE-1000 series

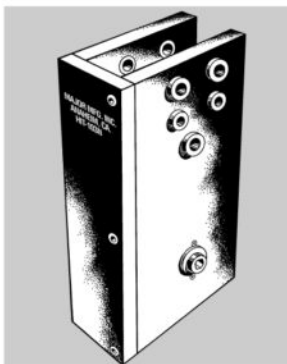


HIT-102
For Unican 1000 and Alarm
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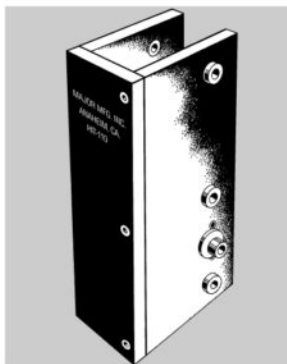
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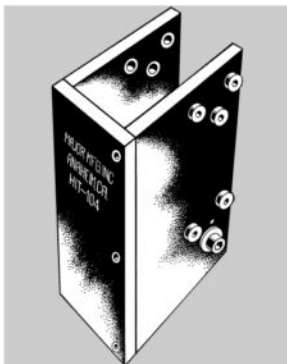
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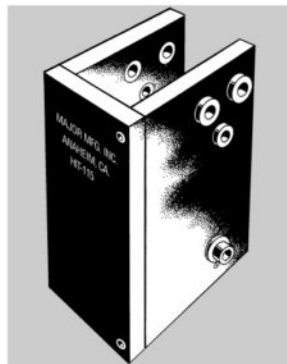
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Transponders 101: The Basics



by
Ken Holmlund

I hate to be the one to break the news to you, but transponders are here to stay. Whether we like them or not, or whether we are ready for the change, transponders will be a part of the automotive landscape for as long as we can see into the future. If we want to be in the automotive locksmith business, we will have to get on the transponder information highway. An example of just some of the transponder blanks is shown in *photograph 1*.

The purpose of this article is to give you the information you need to get into the business of transponders. I will not get into the technical stuff here because I don't believe we need to know all the minute details of how transponders work to be able to service them. Just a basic understanding will suit our needs just fine.

For the information included here, I gratefully acknowledge the help and advice of Brad Kenning from ASP, Bob Daniels from Clark Security and all the others that participated in the classes given recently at the Clark Security Show in Reno.

I have to admit that when I headed to the classes I was a little apprehensive about transponders. I knew enough to

know I didn't know enough, and that left me in the dark. I had to decide if I was going to be in the automotive part of our profession or not, and the classes would help me make that decision. My advice is to get training and hands on

experience at classes whenever they are in your neck of the woods. I have long said that I learn by reading, but I understand by doing, and that is what these classes gave us. I left the training excited about the opportunity transponder work afforded me and could not wait to get with the program. Transponders were no longer scary.



Photograph 1.

Automotive Transponder System Components

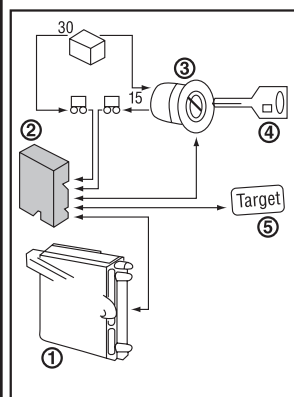


Illustration A.

1. Engine Control Module
2. Control Module
3. Antenna Ring
4. Transponder Key
5. Data Link Connector

Let me begin by giving a very basic explanation of how transponders work, (*see illustration A*). Built into the head of the key is a transmitter that requires no outside power source to work, (*see photograph 2*). Around the ring of the ignition is a coil of wires that are hooked to an electronic box called an ECU. When the ignition key is turned the coil sends out energy that is absorbed by the



Photograph 2.

transmitter in the key and when sufficient energy is absorbed, the transmitter will emit a signal containing its serial number and program information. If that matches with the information stored in memory, it will allow the vehicle to start. If the serial number is different, the vehicle will not start.

The basic purpose of transponders is to eliminate auto theft. During the 1980's, auto theft was a major problem in Europe, and the insurance companies put more than a little heat on the car manufacturers to provide a deterrent that worked to stop the problem or insurance prices would go through the roof. They came back with the transponder technology and that is why we find most of the new ideas for transponders coming from Europe. They have been working on this technology for at least ten years longer than the US manufacturers, and are therefore ahead of us. US manufacturers are now into the technology and changes are occurring very quickly. Most of the changes do not affect us in the field, but some will require continuing education to be up to speed.

Let's now look at some definitions to get a better understanding of the field we are exploring:

Transponder—A combination of two words (transmitter and responder) used to describe the technology currently being employed to deter automotive theft.

Antenna—The coil of wire surrounding the lock housing that emits the energy to power the transmitter and receives the signal from the transmitter.

ECM-Engine Control Module or Electronic Control Module—The brains of the system. Basically an onboard

computer that communicates with the immobilizer through special software.

Control Module—Communication device between the ECM and the transponder. Sends out the carrier frequency via the antenna and determines if the correct code is being used.

Data Link Connector—The connection we use to hook the programmer to the

system. Different systems use different connectors and adapters are needed for each different connector.

Fixed Value Transponder—A key that has been pre-programmed with a pre-existing value that can be read by the automobiles on-board computer. Sometimes called a read only chip. It cannot be changed.

Zero Value Transponder—A key that has no pre-



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programmed value and cannot be programmed by the vehicles on board programming without a value being assigned to them using the proper equipment. The values can be changed as often as necessary. This transponder type is often referred to by many names including no value, read/write, programmable, and uncoded. They all mean the same thing and should not be confused as different transponder types.

Rolling Code Chips—A type of transponder where the information emitted and stored changes each time the key is used. We will not get into this type of transponder except to say, send it to the dealer.

Cloning—Copying the information from a key currently in the system, storing the information and transferring that information to another key that is a zero value or one that

has been previously cloned. Special equipment is required for this process.

T5 and N-designations given to key blanks by manufacturers to distinguish between fixed value and zero value blanks. The Ilco key blank H72-PT5 indicates that the key blank is a zero value blank and can be cloned as opposed to the H72-PT which is a fixed value and can not be cloned.

PIN Numbers—A code needed for some manufacturers to enable the system to be accessed. Sometimes called access codes. A present the several of the programming machines have the ability to read the PIN number from the vehicle and can therefore bypass the PIN. Most notably in the US market are the Chrysler/Dodge vehicles, which will still need a PIN. These can be gotten from

dealerships or through a couple of aftermarket suppliers.

On Board Programming—Term used to indicate the transponder mechanism on the vehicle will accept new keys without the use of special equipment to access the ECU. Most GM vehicles and Ford PATS 1 are examples of this type of system. Also referred to as field programmable.

Dealer Programmable—Dealers can usually program keys for their line of vehicles only but there are some vehicles that require dealer only machines to program. Examples of this kind of system are BMW and Mercedes Benz. You have no option but to send them to a dealer.

Working Field—The area around the antenna in which the transponder can operate. Usually 10 to 30 mm. average or about 1.5 inches maximum.

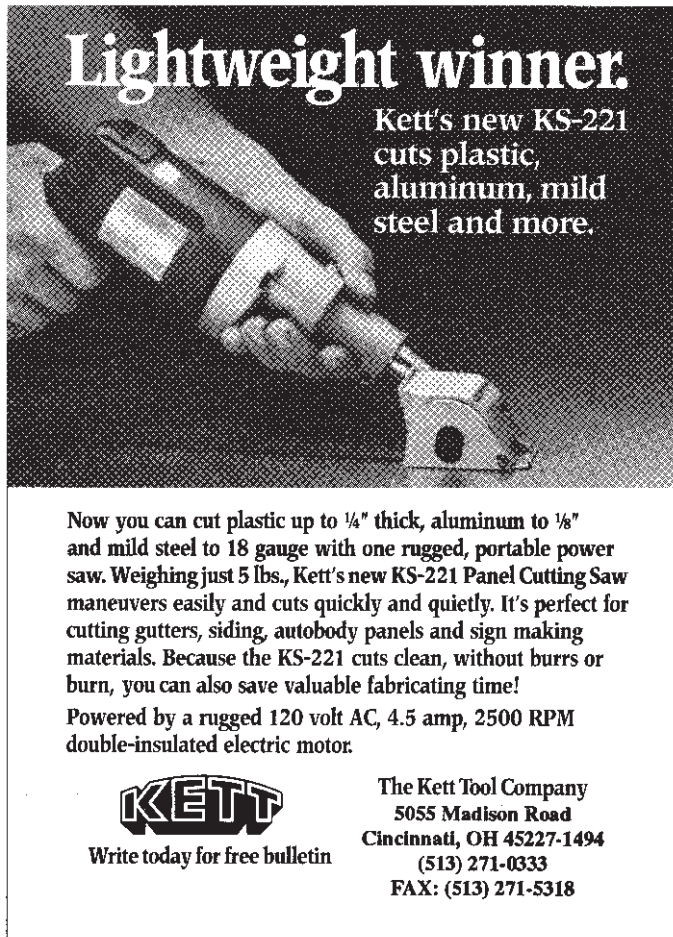


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Fairly new technology in the US that uses a mathematical algorithm to contain the information being transmitted. Special equipment is necessary to work with these systems. Some of the new Ford vehicles are using this type of system.

CAN—Contrary to the belief of some, this is not short for Canada. A vehicle with CAN is not made in Canada. It is short for Controller Area Network and is a new method used to communicate between the on board computer and the various systems on the vehicle, including the ignition system. It has been used in Europe for more than ten years and it is mandated that this will be the standard for all vehicles manufactured for sale in the US by 2008 (subject to change). All we really need to know about CAN is that we will have to

have the right software in the right equipment to work with it in the future. Ford and Chrysler are at the cutting edge of this technology in the US and have employed it in some of their 2004 vehicles. It is a rapidly changing technology and what is current today is outdated tomorrow.

A fixed number set by some vehicle manufacturers for the total transponder keys that can be used in their system at any one time. Usually if that number is exceeded, the oldest key is eliminated from the system. In order to know how many keys are allowed for the system you are working with you will need some form of information from the manufacturer or aftermarket supplier. Care must be used to know the number of keys that are currently in a system before adding more.

As you can see, there is some special terminology used in the transponder technology but there does not seem to be any standardization of terms and this leads to confusion on the part of the person just getting into the field. My best advise to you is to go to a hands on class when one is available near you. Education costs money and time but the lack of education has a far greater cost. This is a field that is changing so quickly that there is no way we can keep up with it on our own. Let the experts in the field keep up with it and learn from them.

Next month I will go into some of the tools available to the locksmith that makes all this make sense and work for us in the field.



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08/04

THE Lighter SIDE

Who Says You Can't?



Don peeked in from his office one evening when we were both working late.

"What are you doing?" he asked. "You're mighty quiet in there."

"If you must know, I'm contemplating murder," I replied.

"You got somebody particular in mind, or is this just a generalized feeling?" he asked.

"Right now, I'd love to strangle the guy who talked me into buying this new computer," I muttered. "I've been struggling with it for about a month now, and I still don't have a clue to what I'm doing."

"Look at the bright side. At least now you have something to blame your mess-ups on." He snickered rudely.

I ignored him.

"I thought upgrading to this new-fangled machine would be adjustment enough," I complained, "but trying to master these new version of Windows and WordPerfect after working with the old ones all these years is driving me crazy."

I heard a muffled sound from Don's direction.

"What was that?" I asked

"I didn't hear anything," he said, hiding a smirk.

"You said something."

"Who? me?"

After a moment of quiet, Don asked, "Got any plans for the old computer?"

"I don't know. I'll probably wind up donating it to some worthy cause. But first, I want to be sure this new set-up is working right."

"Sounds like you have some doubts," Don said.

"I don't know if it's the computer or just me, but something's been acting a bit strangely. Yesterday I was right in the middle of a letter to one of our suppliers when one of those little display boxes popped down out of nowhere, asking me to make choices that seemed totally unrelated to what I was doing."

Don smirked. "You must have clicked on the wrong thing."

"That's just it. I didn't click on anything. I was just typing away at the keyboard. I guess ever since we had that hard disk crash on a new computer a few years back, I've been kind of skiddish about things like that," I said. "Even though Chuck insisted it wasn't my fault, I don't want to take any chances."

"That was a faulty hard drive. We had nothing but problems with that one from the start."

I knew he was right, but all I could think of was the headaches we'd had before, sending that computer back and forth for "adjustments," replacing some of its innards, finally putting in a new hard drive after everything went haywire a week later. I didn't want to spend another chunk of time transferring everything onto a new hard drive, ever again, if I could avoid it.

"Tell me why it takes twice as long to bring up my programs on this computer as it did on my old one. I thought one of the main advantages of getting this super-duper new one was its speed?"

"It is, once you get into your program, but the new Windows version is a lot more complicated than the old one. Since it offers you a whole lot more options, it just naturally takes a little longer to bring them up," Don explained. "No telling how long you'd have to wait if you had this program on your old computer."

I knew he was right, but what he described was exactly the part of the problem I was having trouble coming to terms with. I wasn't at all sure I wanted the extra options. The more I worked with these advanced programs, and the more I learned about the Internet, the more convinced I became that I didn't need all these "advantages" and possibilities. The people I knew who touted them obviously had more time to play around than I did.

"You need to make up your mind to enjoy the change," Don advised. "The new stuff is good. But it is different."

"So is tofu, but that doesn't mean I like it."

"Look at it this way," he patiently tried to explain, "It's like the difference between shopping at the corner grocery or the Mega-Marketplace."

"You lost me," I admitted.

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"When you want a loaf of bread, if you go to the Mega-Marketplace, you got a lot of choices. They have cracked wheat, sprouted wheat, multi-grain, wheat bran, oat bran, rye, pumpernickel, potato, salt rising, sourdough, cinnamon-raisin swirl, Italian, French, sliced, unsliced, you name it. That's the way the new computer programs are. You have all these wonderful options to choose from."

"I like shopping at the little corner grocery."

"Maybe so, but your choices are very limited there. All they have is white bread or brown bread, period."

"That's why I like to shop there. It's simple. Besides, what if I just want plain bread? At Mega-Market, I spend thirty minutes to park my car, get inside and find the bread counter, another fifteen minutes looking through the hundred-and-one options to find the bread I want, then

thirty more minutes waiting in line to get checked out and finding my car."

"You're missing the point," Don said. He was growing impatient.

"No I'm not. I was just using your illustration and expanding on it. You were the one who pointed out the new computer system is like the overflowing bread counter. The point is, a lot of times all I really want is just to grab a quick loaf of plain bread and get out of there."

Don shook his head. "You're living in the dark ages."

"Maybe. But at least I know where the candles are."

When I came into the office the following Monday, I turned on the computer and was surprised to see a new icon on the menu. It was my old WordPerfect program. I felt like I'd found a lost friend.

"What's this?" I asked Don.

"Just a little something I had Chuck come in and do for you. Happy Monday." He smiled

smugly. "If you don't want the delay of booting up the new Windows to get to your old program, he can bring you in through DOS and make the old Windows an option."

"I had no idea he could do that," I confessed.

"He can even start you off from a plain-Jane menu on a dark screen instead of from the menu of icons, if you want. That way, you wouldn't have all the distractions of the Mega-Market to contend with." Don waited for my response. "Shall I call him back over and have it changed?"

I looked at the colorful display of options before me. Icons for various games and programs illuminated the screen, inviting me to try them. I critically eyed first the old, plain-Jane icon, then the bright new array surrounding it.

"Maybe I'll give it a day or two," I said, "Now that I can have it all, I feel a real pig-out session coming on." ■■■

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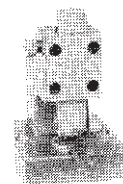
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WAFER TUMBLER READING

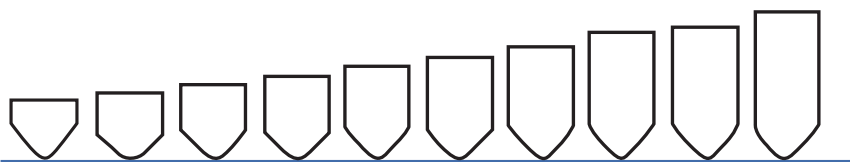
PART 2



by
Sal Dulcamaro,
CML

Generically, we use some form of tumbler reading for most key fitting procedures as locksmiths. The typical tumbler reading procedure might involve some disassembly of the lock cylinder, removal of the tumblers and measuring (deciphering) the tumbler sizes. *Figure 1*, illustrates an example of ten different lengths (sizes) of pin tumblers that might be typical of many different brands of commercial locks. The concept of size and length are virtually identical when it comes to pin tumbler locks.

In this article I am dealing with a somewhat more sophisticated concept when I refer to tumbler reading. This type of tumbler reading involves appraising the size of the tumblers in a lock without disassembly happening first. With a lock still installed and fully assembled, our access or window to its inside view is mostly limited to the keyway or broaching of the lock cylinder plug. If we could overlay



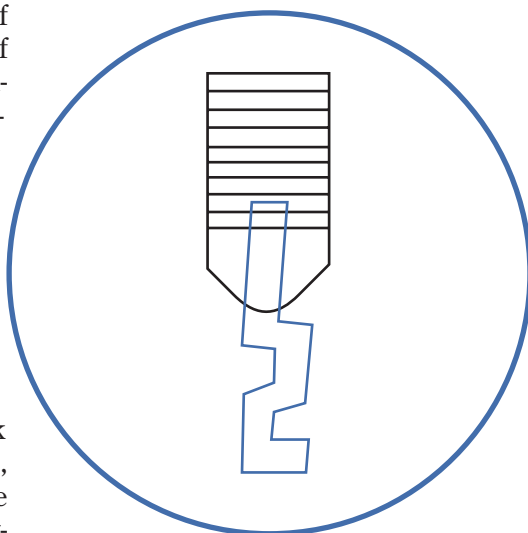
1. An example of ten different lengths (sizes) of pin tumblers.

the outline of all ten tumbler sizes over the face of the cylinder plug we would have some idea as to how the tiny opening of the keyway drastically limits our view of the tumblers inside (*see figure 2*).

That limitation becomes more obvious when we show only what

might be visible within the keyway itself (*see figure 3*). Visible here is the partial bottom surface of the pin tumbler and the potential top surfaces of a "0" or "1" length bottom pin. I intentionally have two split points showing near the top of the keyway to indicate that only the two smallest lengths can be visibly verified through the keyway. Both splits would not be visible at the same time, so a probe or other tool would be needed to move a preceding pin to view anything further into the keyway. If a pin tumbler lock contained only sizes #0 and #1 bottom pins, tumbler reading might be practical with pin tumbler locks. All the longer pins have their top surface completely out of view of the keyway.

As a result of the limited view, only the very shortest length pins can be identified visually through the keyway. The split



2. The tiny opening of the keyway drastically limits our view of the tumblers inside.

Continued on page 48



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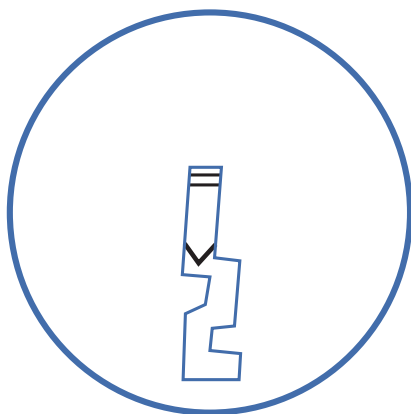
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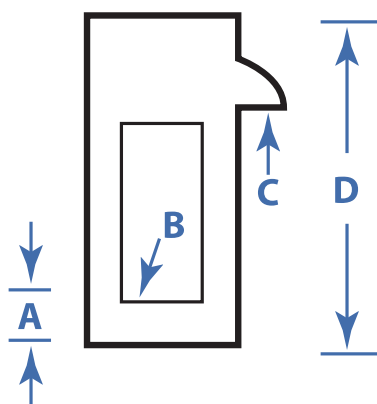
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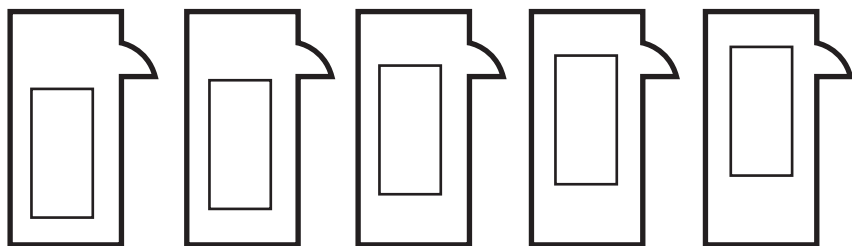
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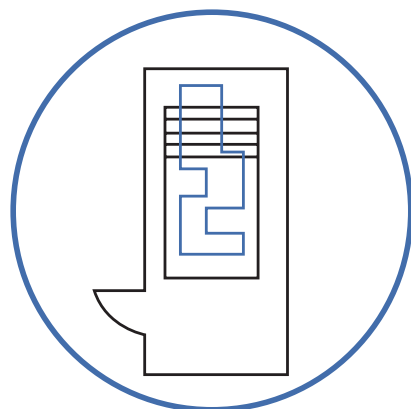
3. What might be visible within the keyway itself.



4. Disc tumblers, by contrast, are nearly rectangular.



5. When comparing you will find that the tumbler lengths are the same.



6. Disc tumbler locks are perfectly suited to tumbler reading through the keyway.

between the bottom and top pins in a chamber can be seen within the confines of the keyway when a "0" or "1" size (or length) bottom pin is in the chamber. All longer pins would seem identical since the split would be just out of view. That limitation makes it impractical to read pin tumblers through the keyway. I have heard of non-visual techniques for deciphering pin lengths without disassembly, but those methods involve exotic equipment. I don't have any first hand knowledge of such techniques, and can't say whether or not they are even effective or practical. The devices are, as I hear it, quite expensive. So, let's just move on to disc tumbler locks.

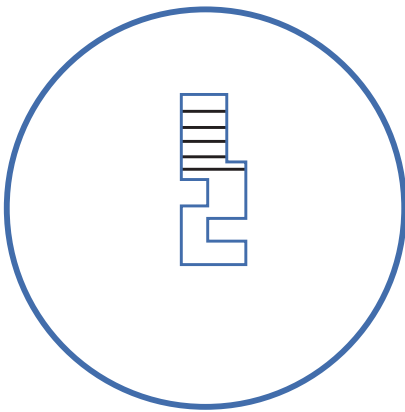
While various types of locks are subject to some forms of visual identification of some of the tumblers through the keyway, disc tumbler locks are most perfectly suited to this method of lock decoding. Disc (also known as wafer) tumblers have significantly different characteristics

than pin tumblers. Tumblers for most residential and commercial pin tumbler locks are typically .115 inch in diameter and varied lengths. They are round (pin-shaped) and the size of the pin tumbler and its length identifies the exact same value. Disc tumblers, by contrast, are nearly rectangular (*see figure 4*). Since all the disc tumblers must be flush with the outside surfaces of the plug on both ends for unlocking, they must all have the same lengths. The size and length of a disc tumbler is separately identi-

fied. The measurement "A" is what would be the size of the disc tumbler shown. Surface "B" is where the cut surface of the key would contact the tumbler and move the tumbler in the direction identified by the arrow. "C" is the tumbler arm. A tumbler spring is normally under the tumbler arm and pushes it in the direction indicated by the arrow. "D" is the length of the tumbler.

Depending on the brand, disc tumblers typically range from three to six different sizes. I'd guess that five sizes are probably most common. When comparing the five different sizes of disc tumblers you will find that the tumbler lengths are the same (*see figure 5*). The size of the tumbler is measured from the interior surface of the tumbler where the key makes contact to the outside surface of the tumbler on the same end. From left to right, the tumblers that would be numbered from 1 to 5 grow progressively larger in that size measurement. Notice that as the size increases, the tumbler length does not change. There is a rectangular cutout within each of the tumblers through which the key fits for lock operation. That cutout is identical for each tumbler except for its position within the tumbler. The size of the tumbler getting larger causes the cutout to shift closer and closer to the tumbler arm end of the tumbler.

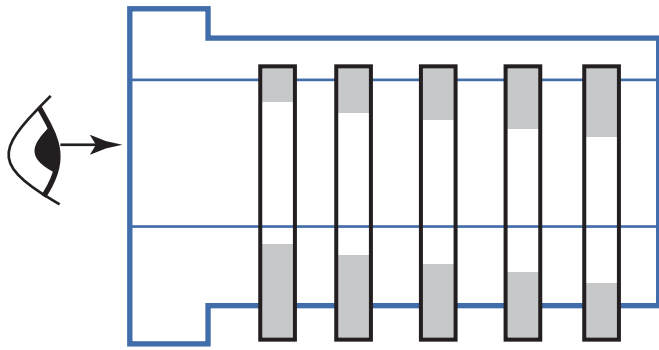
Earlier I illustrated as overlays, how the actual profiles of pin tumblers relate to the viewable opening of the keyway for a pin tumbler lock. That illustration helped to show why tumbler reading through the keyway is not practical for pin tumbler locks. A similar overlay using disc tumblers helps to illustrate why disc tumbler locks are perfectly suited to tumbler reading through the keyway (*see figure 6*). By removing the



7. All five sizes of disc tumblers can be individually discerned within the keyway.

overlay of full tumblers it becomes quite evident that all five sizes of disc tumblers can be individually discerned within the keyway (see figure 7).

There is only one circumstance where all five of the disc tumbler heights can be viewed at the same time without manipulating or moving tumblers further in front. A side cutaway view with the tumbler sequence 1-2-3-4-5



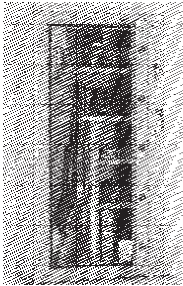
8. A side cut-away view with the tumbler sequence 1-2-3-4-5.

allows that no tumbler further in front descends far enough to obstruct any tumblers further inward (see figure 8). For most of us, the unaided human eye will be inadequate to see that far into a disc tumbler lock.

Before I go any further into procedure or technique, let me reflect on the fact that the unaided human eye is generally inadequate for tumbler reading. Now, I won't try to argue with the few locksmiths that have absolutely incredible eyesight and can see clearly inside a lock, but even

those of us with pretty good eyesight need some additional help seeing all the tumblers. In the first part of this article last month, I had mentioned the importance of an otoscope for practitioners (or students) of tumbler reading. An otoscope is an optical device (similar to those used by doctors) for viewing deep or poorly lighted orifices. The otoscope will provide additional light and magnification for looking into the keyway of a lock and allow you to clearly see the tumblers inside.

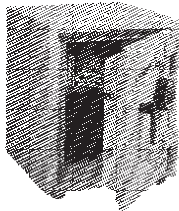
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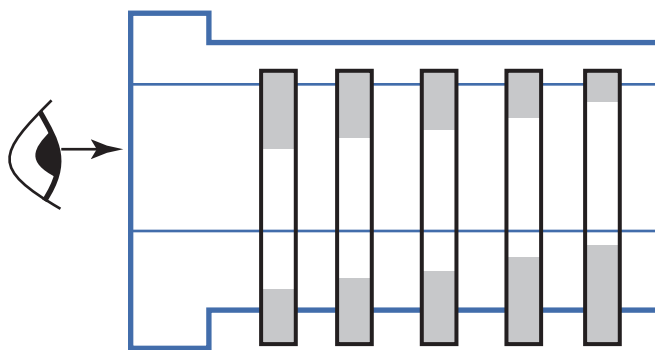
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As I mentioned last month, I am a fairly recent convert to disc tumbler reading. While I have been a consistent practitioner for only around three years or so, I have known about the technique for more than twenty years. Over the years when I taught student locksmiths the mechanics and principles of disc tumbler locks, I always made a point of briefly describing the technique of tumbler reading as one of many options for fitting keys to disc tumbler locks. With minimal first hand experience at tumbler reading, I unwittingly discouraged students from developing this skill. I would typically add the disclaimer, "It takes a lot of diligence and practice to become expert at tumbler reading". While now being fairly skilled at this key fitting technique, I can't find specific fault with my earlier statements on the subject. I do, however, now realize that you don't need to be "expert" at it to make it a useful and profitable option for



9. If the tumbler pattern was reversed the front tumbler position would obscure your view of all the remaining tumblers.

key fitting. I will tell you quite honestly that with fairly minimal practice and effort, you can do a quite serviceable job of tumbler reading. If you do any key fitting for disc tumbler locks (remember most auto locks now have disc tumblers), it will be beneficial for you to learn tumbler reading.

Returning to *figure 8*, you can see how the tumbler size is identified by how much metal (material) is between the inside surface of the tumbler where the key makes contact and the end surface of the disc tumbler. That distance or measurement translates into how

far that portion of the tumbler will descend into the keyway and be viewable. It has the general appearance of a series of window shades pulled down to various levels. The lower the shade is pulled, the larger the tumbler size is. A #1 size tumbler is like a shade pulled down just a little bit and a #5 tumbler is like one pulled down rather far. All other sizes incrementally range in between those two extremes. With the aid of an otoscope, that pattern of tumblers would look much like the illustration in *figure 7*.

Continued on page 52

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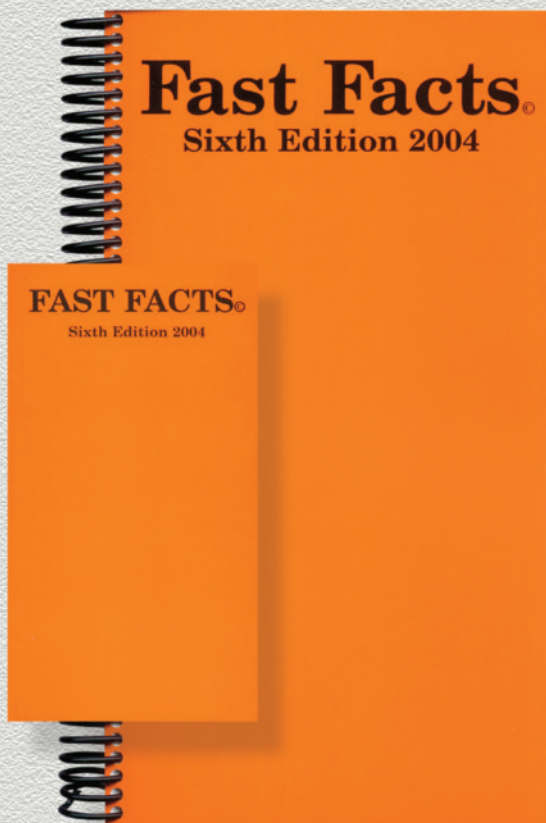
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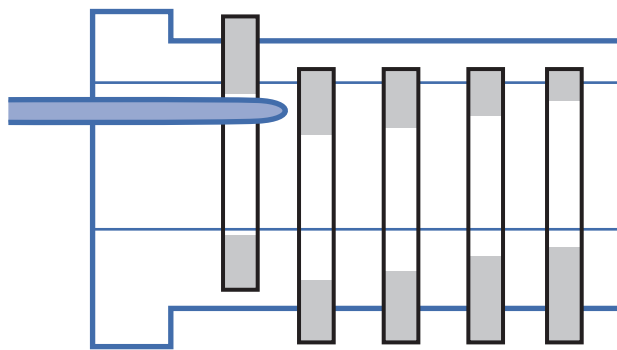
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If the tumbler pattern was reversed and the tumbler sequence in the lock was 5-4-3-2-1, the #5 tumbler in the front tumbler position would obscure your view of all the remaining tumblers (see figure 9). Even with an otoscope, that front tumbler would block your view of the remaining tumblers regardless of the additional light and magnification. While you will rarely come across this specific tumbler sequence where the tumbler sizes are one step progressively smaller from chamber to chamber, some variation of this basic situation will be very common.

You will almost always have some larger size tumbler descending downward into the keyway and blocking some tumblers further inside the lock. In fact, it will be rather common for more than one tumbler to do that. To deal with a view-obstructing tumbler, you will need some sort of probe to move the tumblers, in addition to your otoscope. You will find some otoscopes are available with a probe attachment, so you won't need to use one hand for the otoscope and the other hand for the probe. I find that to be more convenient, but a separate probe is still effective.

By using a probe you are able to move an obstructing tumbler and look behind it (see figure 10). Lifting the #5 tumbler reveals the #4 tumbler behind it, but the #4 tumbler will descend far enough to obstruct all the remaining tumblers. This example is an extreme case. You would have to use your probe lifting each tumbler further back revealing only one tumbler at a time, since each one further in is higher in the keyway. For locks that you will see, it is a lot more likely that you will lift a tumbler and see a few tumblers behind and then have to lift at least one more tumbler to see the remaining ones.

The question becomes, now that you have looked inside the



10. By using a probe you are able to move an obstructing tumbler.

lock and viewed the tumblers, what do you do. This article is aimed at locksmiths who aren't so much eager to be an expert at tumbler reading but those that want another weapon in their key-fitting arsenal. I use tumbler reading very effectively, but I don't consider myself an expert. Those observing me use this method might think so, but expertise is a matter of degree. I usually identify the tumbler that sets the highest in the keyway and the one that sets the lowest. If the one that sets the highest is very high in the keyway, I may guess it to be a #1 tumbler. If the one that sets the lowest in the keyway is very low, I may guess that one to be a #5 tumbler. I then guesstimate the relative height of the remaining tumblers as being in between those two extremes. If I find all five tumblers are each at different heights, it will be a safe guess that I can use tumbler values from #1 to #5. If I realize that there are five tumblers but a total of two or three different height positions among them, I will generally estimate the values shallow. What might actually be a #5 tumbler, I could likely guess to be a #4. I do that since I can always file my key deeper, but I can't add metal back that I filed away. An expert (which I'm not) might know exactly how far into the keyway the #5 drops and recognize it immediately.

My point here is for you not to wait until you become an expert before you decide to make money with tumbler reading. To

borrow the slogan from Nike, just do it. It is easier than you think. I have been very good at impressing disc tumbler locks for very many years, and by using tumbler reading as an extra diagnostic step I don't have to bend and break key blanks as often. I can tell right away if I need to file a very deep cut in a particular position, whether it is a #4 or a #5 tumbler. I don't do any extra practice at all outside of when I'm actually fitting a key on a job. By doing it on a fairly regular basis, though, I have gotten a lot better at it without consciously trying. I have been able to use tumbler reading to help me fit keys from the time that I first practiced it. I have just honed my skills a bit, the more that I do it. I think you can do the same. If you had never heard of tumbler reading before this article or just thought it was too difficult to try, give it a shot. You may surprise yourself at how good you can be.

If you are not content with just being effective and want to be an expert, you might want to check out a technical book by Bob Sieveking. It is called *The National Locksmith Guide to Wafer Lock Reading*. It is a mini course in tumbler reading, and it goes into a lot more detail than I have in this article. If you need an otoscope, check with one of your suppliers or Bob Sieveking's website: www.sievekingprodco.com. Bob sells otoscopes, his own designed probe and tumbler reading gauge, plus other interesting locksmith tools.



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ACCESSORIES DRILL/

The electric drill is a staple in any locksmith's toolbox. While an electric drill is an essential tool, to achieve its maximum potential, drill accessories such as drill guides, rigs, templates, or adapters, make a drill indispensable, not to mention your life a whole lot easier.

A1's Installation Innovations

A1 is well known for its innovative approach and design of locksmith tools. Its J-Series installation tools for Trilogy and Simplex 1000 Series is no exception to the rule. Unlike many other jigs, including others offered by A1, the J-Series jigs are dedicated.

By having a jig dedicated for specific installations, costs can be kept to a minimum while quality of installation is optimized. Since the jig is designed for one instal-

lation application, tolerances can be held to tighter specifications. Installers won't need to tweak any adjustments.

Another important distinction of these jigs is that instead of being mere templates for drilling pilot holes, all cross bores are drilled in one easy step using forstner bits or hole saws.

The company also manufactures its Bulls Eye Installation tool for Cylindrical Locksets (#BUL-2). Again, employing A1's innovative approach, this jig can be used with standard hole saws or bits typically already in most locksmiths tool boxes. The jig handles 2-1/8" & 1-1/2" cross-bore and features a handy toggle for switching backsets. It even has a feature that permits the use of two interconnected jigs for dual bores or interconnecting locksets.

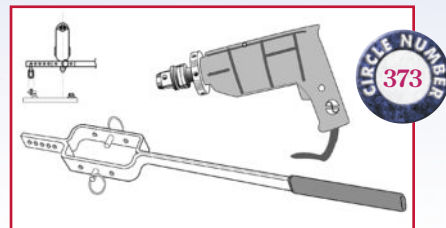
Keedex K-14 Safebuster

The Keedex K-14 Safebuster is the most affordable safe drilling rig available on the market. The Keedex K-14 includes a split collar adapter, which fits on the drill motor, below the chuck. The drill & collar are held in place on the rig, by two quick release pins. This design allows you to quickly release your drill and use it for other purposes.

There are two collars available: one for drills with a housing that measures: 1.69" to 1.72" in diameter & one for drills with a diameter of 1.8" - such as the Milwaukee.

Since the drill motor is held in place by the split collar, the

Continued on page 56



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drill is prevented from rotating out of control.

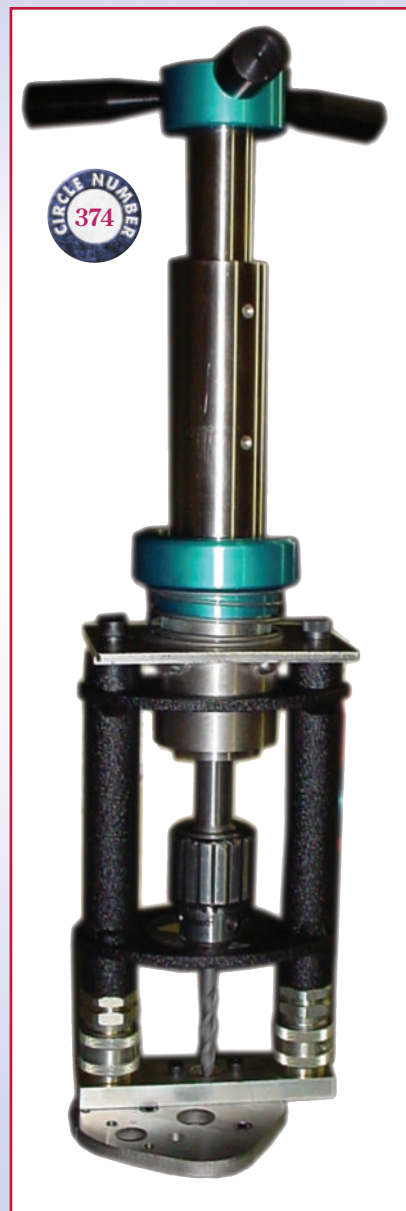
The K-14 design allows for minimal setup time in attaching it to the safe. There are three different mounting positions for the drill. The S-hook that holds the chain has five different positions.

The Keedex K-14 includes four Keedex carbide tipped safe drilling bits. Keedex products are available from your distributor.

Lockmasters Quick Disconnect Drill Rig

Lockmasters' is a leader in drill rig innovation and they're constantly looking for a better and easier way to get into a locked up container. Over the years, fixed drill rigs have been transformed from large and very cumbersome, to light and versatile.

Lockmasters' is proud to introduce their New Magnum Bullet, Quick Disconnect Drill



Rig. They have taken the old Bullet and transformed it into the safe technician's dream. You can now do template drilling with the Magnum Bullet and at any moment pull the entire drill rig off the template in an instant, to inspect your drilling progress or use a scope to look inside the lock or safe. This is done using pressure fittings that are uniquely designed to handle the rigors of safe work.

For those of you that have the old style Magnum Bullet, Lockmasters did not forget about you. You can simply buy the New Quick Disconnect Frame and you are ready to go. No need to buy a complete new rig.



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— Mike & Carol Oar
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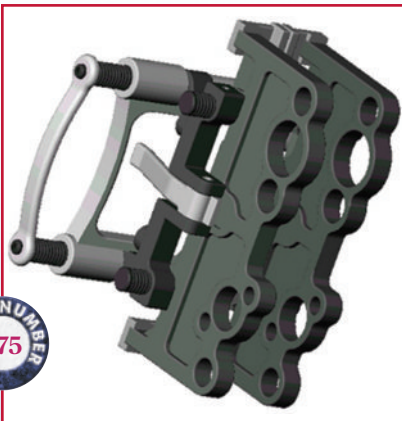
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LockTools Wild Jig 2

An interchangeable plate for Baldwin mortise locks is the latest addition to the WildJig 2 mortise installation tool by LockTools. Built from quality steel under demanding quality standards, the jig itself and all plates are backed by a warranty. Changing plates on the tool can be done in less than one minute. The jig itself can be clamped on the door in seconds using only one hand, reducing the time necessary to prepare a door for a new mortise installation.



There are no complicated clamp systems, spacing plates or multiple set-up requirements. Instead, the design provides for quick one-hand installation of the jig. A patented grip-lip centering system assures a limited set up time of less than a minute. A total of seven interchangeable templates are available.

In addition to the new Baldwin plate, interchangeable plates are available for Yale, Sargent and Schlage, and new units are continually being developed.

Major Manufacturing Drill Guides

Major Manufacturing first started producing drill guides in the early 1990's. The first guide, designed and made out of necessity, was to retrofit the then new Schlage Olympus lever handle lock. Seeing potential sales to other locksmiths needing a faster and more accurate way to install



locks, the HIT-111 was born. Since then Major has gone on to add more than 20 different drill guides for lever, push button and electrical access locks.

Also added were router guides for aluminum door locks and strikes, drill guides for standard door hardware, cabinet locks and mortise locks. Major Manufacturing is the leader in selection and types of guides offered.

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Mini-Rig has become an industry standard. This fixed rig provides pinpoint accuracy, enormous drilling pressure and depth control in a compact, lightweight package. Included drill-point templates attach to the safe's dial-ring screws and automatically position the rig to drill the most popular safe locks, and its original quick-disconnect feature allows fast and easy hole inspections.

UNI-TEMP's name says it all. A universal dial-ring-mounted device for the Mini-Rig allows you to drill at your choice of drill-points by adjusting its settings: up, down, right and left, just as easily as using a template. Perfect for relockers and vault locks!

STRONGARM'S VAC-ATTACK is the next generation of drill rigs. It's a rack and pinion drill press, which attaches to a safe or vault by powerful vacuum.



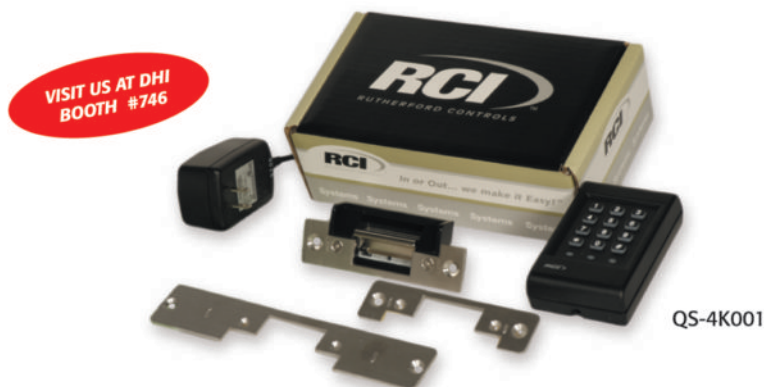
Rave reviews from top safetechs describe it as strong, accurate, compact, lightweight, easy to use, and extremely versatile. They also say it adheres to difficult surfaces better than previous vacuum rigs they've used.



An optional steel base plate allows the Vac-Attack's removable tower assembly to do double-duty as a compact, workbench-mounted drill press for use in your service vehicle or wherever. Complete with a nifty carrying case, the kit comes with everything you'll need to start "Vac-Attacking!" **TRI**

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Master Lock®

As with most companies the only real way to increase your business is to develop new products. Master Lock Co. is best known for being a provider of portable security and as part of that security has traditionally offered products associated with towing and trailers.

30 Series Trailer Coupler Locks

The 30 series trailer coupler locks have been popular for years but there has always been a complaint when it came to rekeying them. Master has recently redesigned that series to make it easily rekeyable. It now has in it a Python style cylinder that can be rekeyed using the 8491 Python rekeying kit. To make the new version easily recognizable the color of the lock body has also been changed from brown to a dark gray (see photos 1-4).

The 377

Another lock available for a trailer coupler latch is the 377. Not easily rekeyable, it is supplied with the popular number 1 keyway, which means standard laminated padlocks can be ordered to a corresponding key code.

Also known for our innovative approach when producing a new product, we have ventured into non-locking areas when it comes to towing equipment. This total system approach guarantees that we have a means for locking each and every component the end user needs to protect.

Multi-fit Hitches

When designing a complete

Towing Security

by Roxanne Piagentini
& Billy B. Edwards Jr

system for towing we decided to start with the basics and build from there. You can't get much more basic than the hitch itself and we have two multi-fit versions available. Hardware and instructions are included for easy installation. No special tools are required and many applications do not require drilling. All hitches exceed V-5/J684 specifications (see photo 5).

Once the hitch is mounted on the vehicle the security options become more defined. The ball mount receivers on hitches are the first security concern. Typically supplied with a pin and a clip retainer, the clip will invariably be lost when ball mounts are changed. The end user will then typically resort to a piece of wire in its place and that is dangerous. To solve that problem issue, Master Lock has developed a pin with a built in lock that won't be lost.

Pivot-Lock™ Receiver Hitch Pins

The 1465 is a 5/8" diameter pin that has a red spring-loaded cap on it. The cap can be moved

Continued on page 62



Photograph 1.



Photograph 2.



Photograph 3.

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The Forté™ "Hasplock" introduces a new standard in quality commercial and industrial locking security.

Forté HaspLocks (4 models) are designed for all types of storefront, door, gate and storage locking, either as add-on security for existing locks or as primary locks.

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Quality Forté Hasplock is highly resistant to hacksawing, levering and oxyacetylene cutting.



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Photograph 4.



Photograph 7.

to a locked position. The version with the flat slide is available in two diameters, the 1492 at a 1/2" and the 1495 at 5/8" (*see photo 6*). The pivoting anodized aluminum barrel of the 1465 is attached to a stainless steel hitch pin and the pivoting blade on the chrome plated hitch pin can be locked in both directions with a one-handed operation.

Receiver Locks

If you want a key operated hitch pin our receiver locks feature a Weather Tough™ seal and water tight cap, in addition to the solid brass lock cylinder and cylinder case for extreme corrosion resistance (*see photo 7*). These multi-fit receiver locks have a unique revolving stainless steel sleeve that resists cutting and sawing and fit both 5/8" and 1/2" applications.



Photograph 5.



Photograph 8.



Photograph 9.



Photograph 10.

Ball mounts

We also offer a range of ball mounts with a drop from 1-1/4" to 6" that are reversible for a rise from 3/4" to 4-3/4". The rise and drop information is printed on the face of each ball mount (*see photos 8-10*).

A Level Trailer Equals Safer Towing!

Standard ball mounts are limited to a single fixed position and almost always result in an un-level trailer. In addition to that problem many people have different trailers with different heights that they periodically tow with the same vehicle. Until now the easiest way to try and keep a trailer level was to have a different ball mount for each one. Master Lock has another solution and has invented the World's First Adjustable Height



Photograph 6.



Photograph 11.



Photograph 12.

Zero Tilt Ball Mount so a perfectly level trailer can be achieved (*see photo 11*). This product is effortlessly adjusted from a 7-3/4" drop to a 6-1/4" rise and adjusts while the trailer is loaded on the ball mount. Its E-Z Adjust feature allows the ball mount to be raised or lowered by using a 7/8" wrench or a 3/8" square ratchet drive. The ball mount height is automatically

Continued on page 64

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retained by a patented spring clip feature. It fits: 2" X 2" receivers with a trailer weight capacity of 5,000 lbs and a tongue weight capacity of 500 lbs.

Popular Mechanic's Magazine, Editor's Choice Award Winner!

Hitch Ball Installation Made E-Z!

The design of standard, flat-topped hitch balls has not changed for decades. When the nut is torqued onto the hitch ball shank, the ball rotates preventing a properly torqued installation, needed for safe towing. To try and keep the ball from spinning, most folks use a pipe wrench or pliers, often damaging the chrome finish, inviting rust immediately (see photo 12).

Time to innovate again with a convenient hex-drive top on Master Lock's E-Z Mount Hitch Ball, the 1-7/8" and 2" diameter balls can now be held securely without damaging the chrome finish (see photo 13). In addition, the dome shaped hex-drive fills out the trailer's coupler cavity more completely to ensure that a more secure fit is achieved, resulting in less rattle between ball and coupler.

Another problem area is that of ball theft. People can dismount the ball with a trailer attached and still be able to steal the trailer. Now a way is needed to stop that type of theft.

New Layer in Trailer Security!

Master Lock's new Hitch Ball Lock, combined with the E-Z Mount Hitch Ball, addresses that vulnerable area of trailer theft. Even when a receiver lock and coupler latch lock are used, a thief can still steal a trailer by simply removing the nut on the hitch ball and pulling the coupler and hitch ball out of the ball mount. With Master Lock's hitch ball lock securely in place; thieves will be



▲ **Photograph 13.**



▲ **Photograph 14.**

▲ **Photograph 15.**



▲ **Photograph 16.**



▲ **Photograph 17.**

discouraged since the lock is designed to obstruct access to the hitch ball hex nut (see photo 14).

Typically, as encountered all too often in the real world, the solution to one problem creates another

problem. Many people have different trailers that require a different size ball for the coupler. That means they must either have multiple mounts for the different size balls or they are continually changing the balls on a mount.

Time for another innovation!

Interchangeable Hitch Balls!

Master Lock's new, easy to use, Interchangeable Hitch Ball makes it easy to switch from a 1-7/8" ball to a 2" ball, with just a flip of its pocket-knife style blade and a quarter-turn of the ball. Its retention blades are permanently attached so there are no small parts to lose (see photo 15). This unique patented design is guaranteed to work in the toughest road conditions.

Keyed Alike Trailer Lock Set!

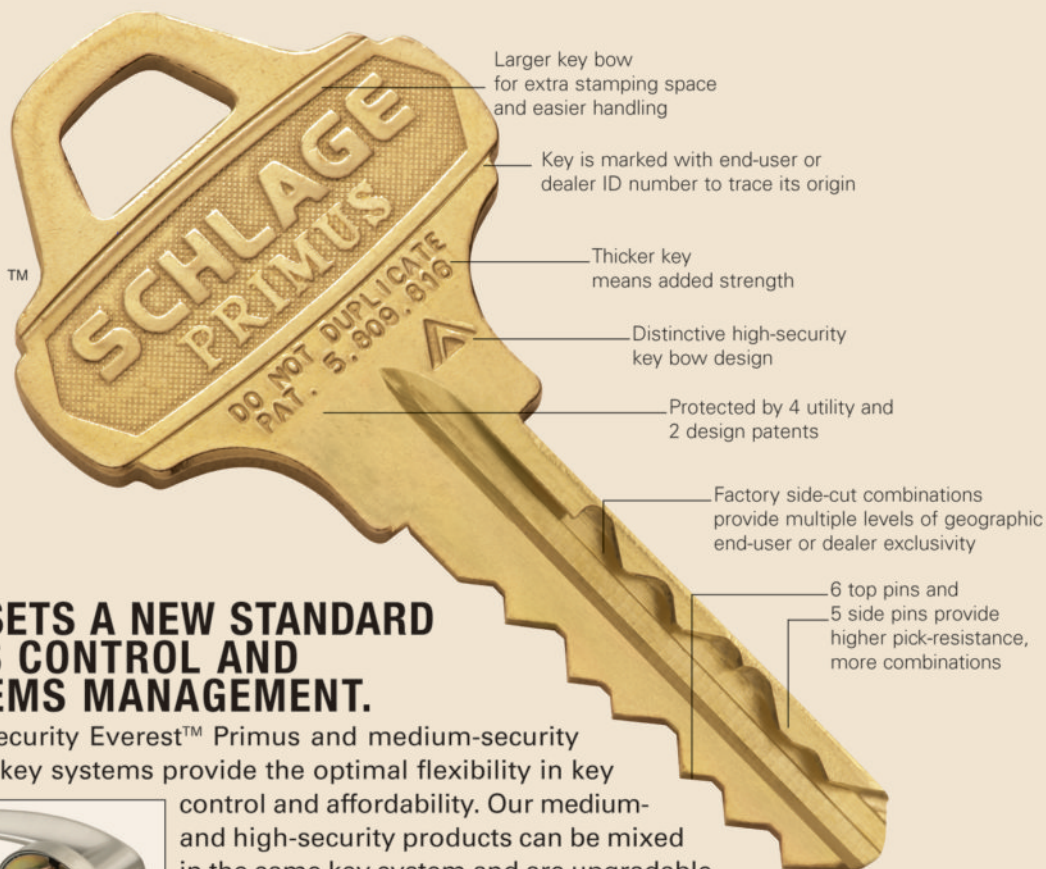
Multiple trailer ownership has created the need for a selection of different types of lock keyed alike. In the 3774 kit, the receiver lock has a Weather Tough™ seal and water tight cap for extreme weather protection (see photo 16). Its removable stainless steel sleeve fits both 5/8" and 1/2" diameter receiver holes. The adjustable coupler latch lock fits 5/8", 1", and 2" coupler holes and the universal coupler lock fits most 1-7/8", 2", and 2-5/16" couplers. The same key fits all three locks.

Safety Cables!

To complete our towing system we also offer self-coiling safety cables reduce the chance of dragging. The 40" cables have a vinyl coating that protects the cable from corrosion as well as the finish on the vehicles being towed (see photo 17).

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Mosler Nemesis



by Dale W. Libby, CMS

In the world of professional safecracking, one will sometimes meet a customer who is a character in his or her own right. I have one such person who does not like my prices, but likes the work and service I do for him. I never discuss prices with him. I just do the work and then submit a bill. He always has add-on work, so I have learned the hard way never to flat rate him, except by the hour. He is a collector of stuff, lots of stuff.

He purchased a large building just to hold all his stuff, and to run his large vending business. One of the items he likes to collect is old locked safes, usually large double door safes, to be precise. Some of them are open, but most are locked and need service and repair, and all have to be set to the same combination. He also likes to group his work together so he only has to pay one service call.

He has about 60 safes in stock, but only uses 15 or so at a time. He constructed a "Safe Room" in this new building just to house them. He has an armored plated door (diamond plate) to protect this room as well. There are three CCTV cameras to cover every inch of the room. I had my own penetration party and service bonanza that week.



1. Mosler Double Door fire rated Safe.

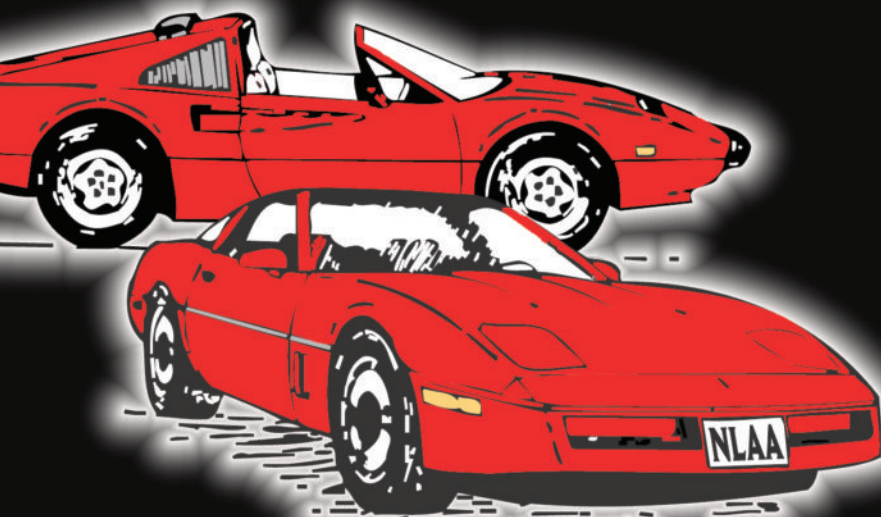
There were three safes that had to be opened and six others that had to be serviced and recombined. There was a lot of strange stuff to work on, and I saved the best for last. At least I thought I did before I actually did the work.

Let us look at my 'nemesis' a little more closely. It is a MOSLER double door fire safe with an "A" 4-hour UL rating. A nemesis is "anyone or anything that seems to inevitably defeat or frustrate one." The diabolical enemy is shown in *photograph 1*. It is sandwiched between two

other double door safes on the far wall of this safe room. The safe was left by one of the many previous owners of this particular factory. How do I know this? I had opened this very safe about 20 years ago for the first owner of the factory, which was a plastic film manufacturing plant at that time.

I do not have that good a memory, but two things let me know that this was a former opponent of mine. The easiest and first thing I noticed was an old service label of mine that had my phone number on it that I had given up about 20 years previously. The second and less precise way of knowing that I had worked on this safe was the Mosler dial center itself, (*see photograph 2*).

About 20 years ago I made 100 dial inserts out of Plexiglas. I drilled holes with a 1-1/2 inch hole saw in my plate of Plexiglas without a pilot drill (of course). The result was a bunch of ragged Plexiglas silver dollar sized discs. I cut off the ragged edges with a razor knife and put marbled blue and white contact paper on both sides of the disk. I then trimmed the contact paper and ended up with a perfect replacement disc for the Mosler Dials that used a black plastic disk from the factory.



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2. A Dale repaired dial center with custom plastic disk.



3. Dial pulled easily exposing dial ring and spindle.

I gave a bunch of these homemade disks to Little Tommy Powers to use. When removing the dials on these Mosler safes with the plastic inserts, it may be necessary to break the insert to either use a Downie pin or a spindle puller to remove the dial from the spindle. The puller fits on the outside circumference of the dial and a small pin is threaded through the puller plate to carefully pull (or push) the dial and spindle apart. This causes no damage to the lock or lock body.

Over the years Tommy and I have run into these special dial insert discs. We take time to try and figure out which one of us did the work on that particular safe. Sometimes it is easy, just by the geography involved. Sometimes, however, it is hard to know just who and where the safe was opened. This safe was easy. It had my label and was in the Elgin area. I remembered the safe, but not how I opened it.

I took a shortcut this time and pulled the dial with a slam type puller. It pulled off almost too easily. I ended up with the dial ring covering my former repairs, (see photograph 3). Now the mystery deepens. I removed the two $\frac{8}{32}$ " dial ring screws and removed the dial ring. I was confronted with a steel taper pin

at the seven o'clock position. The lock in this safe should have been mounted Horizontal Left (HL) or right handed. Why did I drill a hole at the seven o'clock position?

Mosler safes sometimes have that effect on me. I sometimes guess the wrong handing of the lock, and apparently that is what happened 20 years ago. I did get the safe open before, so I thought I would use the same hole again. There was another option, however.

I could use a template and drill the correct Mosler viewing hole, however, there is a problem with this attack, however. This safe uses a raised escutcheon around the dial ring. If I did attach a template to the door, I would have had to use longer attaching screws and I might have ended up bending the escutcheon when attaching the base plate. I could also use the template to mark the correct hole and then drill with a lever rig. This would entail drilling through the thick door and the hardplate again. This was an "A" labeled 4-hour fire safe, meaning a lot of deep drilling.

I took the easy way. I drilled along side the taper pin with a small drill and was able to eventually pry the pin out of its hole. I looked down the hole to

see the back of the lock. I drilled through the case and was into the Mosler 302 lock in no time. I had a beautiful view of all three wheels and the front mounted drive cam.

I had to attach a small dialing device that can also be used as an emergency dial. It is called the Du-Drop Tool. I cannot remember where I got the tool, but it is an incredible apparatus. It makes transferring numbers a snap. If the maker or supplier of the tool would drop me a line, I will correct my lapse of memory. The tool attaches with two Allen set screws and has a small numbered dial and two blank disks that also can be used for transferring numbers. It's a well made and thought out tool, (see photograph 4).

So far the safe has more or less cooperated with my opening ministrations. Single number transferring is quick and easy, and lessens the chance that you will make a mistake with arithmetic transferring. Not to confuse the issue, I will only mention one combination transferring. It has a greater success rate and is faster for me.

What you have to do is to make a small mark as the dialing index at the side of the hole that you are transferring from.

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4. Du-Drop tool attached to dial spindle, hole at about 7 o'clock position.

You are dialing the gates in the wheels to this position at the drilled hole. You will dial the numbers as a real combination while using your borescope.

Start by dialing all wheels to the right to clear the combination. Insert your borescope and start turning the transferring tool to the left, which is the first direction of the combination. Observe the wheel action. The first wheel (not the drive cam) to start moving is the last number of the combination. The last wheel to start turning or rotating is the first number of the combination.

Keep turning until the gate or cut-out in the first wheel is aligned under your drilled (or predrilled) hole. This is the first number of your single combination. This is not the real combination number, but the relative combination or the transferring combination. Now, start dialing right until the next wheel gate is aligned with the first (farthest from the drive wheel or cam) gate you found. Read and record the number at your dialing index scribe. This is the second number of the combination.

Reverse directions again and find the last number of the combination. This wheel is closest to the drive cam. Now, a real time saver is to turn the dial until the gate in the drive cam aligns with the gates in the combination wheels. This is for positioning only and not a number of the combination. For simplicity, let's say your relative combination is: 4 x Left to 60, 3 x Right to 80, 2 x Left to 45, and the drive cam gate is at 17. That is the only combination you have to remember. There is no adding or subtracting numbers to move the gates to the drop in position. 60:80:45: and 17.

Before going any further, validate your combination again. Dial it without looking through your borescope and then take a look. Are all the gates lined up exactly? If so, then you can move on. If not, correct the situation by truing up the combination until all wheel gates align perfectly. By doing this little step, you will save time later on when dialing for opening of the lock.

On Mosler safe locks of this vintage, the 302 (three wheel) or the 402 (four wheel) it is easy to see the drive cam, for it is at the front of the lock when mounted to the safe door. This means that it is closest to you and is easy to view. While looking through the scope, move the drive cam around until you see the lever 'bump'. This is usually not too hard to see with a good scope and light source. Once you determine

the middle of the bump area, (High and Low), look at the dial for number 17, the cut out in the drive cam. Make a mark with a pencil outside the dial-transferring tool on the safe door at number 17 (in this hypothetical case). This is the position of the drop-in area to which all the gates must be dialed.

If, for some reason you cannot see the lever bump or move when you are dialing the drive cam, all is not lost. Just position the Zero on the transferring tool at the place where the dialing index should be (12:00 o'clock) and make a mark at #92. This is the standard position for a Mosler 302 drop-in position of a Horizontal Left (HZ) right handed mounted combination lock.

The last way to find the drop-in position is to feel for it as if you were manipulating the lock. If you are careful, you can feel the bumps when the drive cam contacts the edge of the lever nose as it bumps slightly in and out of the gate in the drive cam. When you feel this bump, note where the #17 on the dial is and make a mark here. This will match the gate in the drive cam on this lock. Now, on to the opening.

After dialing your single combination to the mark you made, bring the drive cam back to the drop-in area and oscillate the dial. By rapidly turning the dial a little near the drop-in area, sometimes you can coax the lever to drop into the gates if the wheels are a little misaligned. If this does not work, make a new line one number to the left or right of your original line and try again. The safe lock will quickly open with the last turn to the right when the lever drops into the gates. You may have to do this several times until the lock opens. Here is why.

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Sometimes the angle you look at the gates is not directly under the hole you are viewing from, and the temporary index will show the wheels a little off center. By just adjusting your new index a little to the left and right, you will succeed. It may take a few marks, but it will work. You are dialing all the gates you found to your drop-in position mark without having to add and subtract numbers, and you only have to remember one combination. It's fast and easy to do with a little practice.

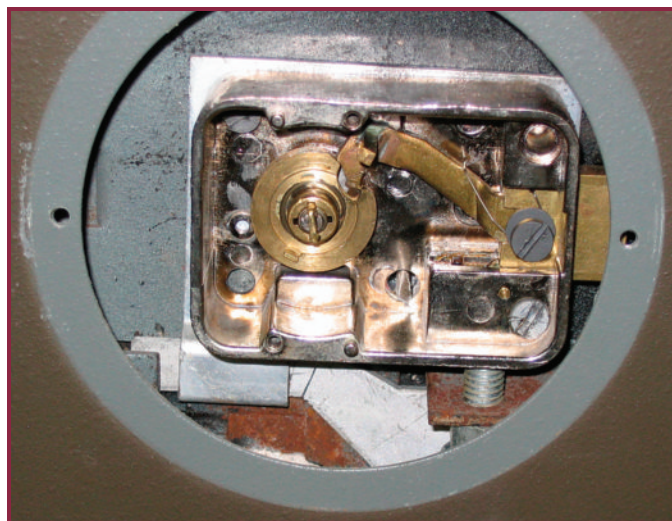
The safe opens. Now comes the hard and aggravating part of the safe job: The repair of the safe lock and the setting of the combination. This took much longer than the opening did and was much more aggrieved. The Libby trophy shot is shown in **photograph 5**. Instead of a drill bit sticking through the hole, I chose to insert a small screwdriver into my drilled hole. As hole positions go, this is a good one for this lock. No insulation can fall into the wheels or mechanism because the hole is at the bottom of the lock. Below the lock can be seen the Mosler relocking device which is just a bar with a cutout in one end. If the dial is punched, the $\frac{3}{8}$ " spindle will force the lock mounting plate away from the spring-loaded bar and the bar will lock the drive cam.

This relocker is not too hard to beat, but requires a hole below the lock and lock mounting plate to raise the bar. The Mosler spindle is turned down to $\frac{1}{4}$ " when it goes through the lock. The $\frac{3}{8}$ " part of the spindle is what forces the lock-mounting bar off the door to set off this external relocker. The lock also has an internal relocking trigger. This internal trigger goes off if the dial spindle is punched and is also set off by heat. A dual-purpose relocker. The internal trigger requires another hole to be drilled to defeat this relocker.

There are tools made specifically for this relock trigger to be inserted in the spindle hole, but I have had little luck with them. First, before using these tools, the spindle must be removed, and this is a time intensive task at best. Then the tool must be inserted, the relocker depressed, and then another tool is used to pull the locking bolt back into the lock. Risky at best. I try not to set off the relocker at any cost. If a burglar sets it off, then drilling for the relockers may be the only option.

The first problem was that I could not remove the horseshoe shaped spine key from the drive cam and spindle. To remove a Mosler spindle from the door, one either has to remove the entire lock or the drive cam from the end of the spindle. Because the spindle is cut down, it cannot pass through the lock body from the front to the back like with most other combination locks. To properly service the spindle and dial, the drive cam must be removed from the end of the spindle.

I have a large and small weighted spline key remover that has always worked in the past. It is a pair of vice grip pliers with a long bolt and slide weight. It has always worked in the past, without exception. Both the large and small unit tools failed here. I did not want to break off the spline key and drill it out. Mosler spindles are specific to particular safes and are like gold. After 20 minutes, I gave up and pressed the dial onto the end of the spindle over the dial ring. This worked just fine for the moment. Now, the real trouble begins.

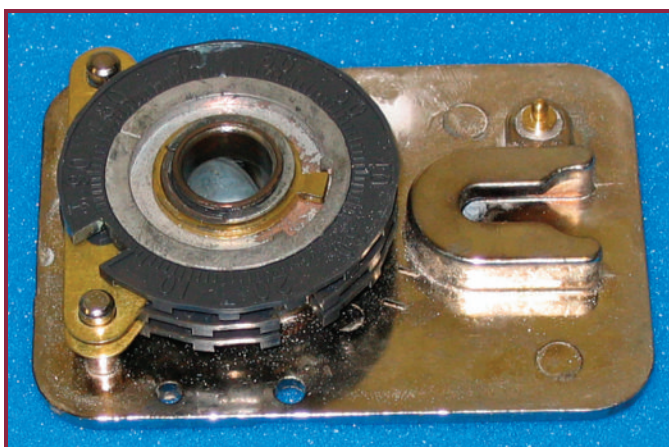


5. Inside view of Mosler 302 lock and lower relock bar below safe lock.

As you can see in **photograph 6**, the wheels are contained on the back cover of the Mosler lock. What you have to do now is to tune-up the lock to the dial spinning. Without removing the spindle from the door, my splinning was a little off. With the correct spline position, when one dials a 50 on the dial to the opening index, then in theory the wheel gate will line up at 50 on the wheel pack. This is correct communication between dial and lock. Without it, the lock will not open.

Fortunately, Mosler makes this final alignment easier than most. The wheels are held on with a snap ring that is not too hard to remove and replace. (If you are only doing it once) Instead of setting the entire combination, I just set the last wheel to the proper number of the secret common combination for all the safes in this room. I then reinstalled the cover on the case of the lock and dialed all wheels left to the last number of the combination.

For clarity, say the last number of the common combination was 45. I dialed all wheels to this number to see if the last wheel would line up. I am only interested in the last wheel or number in this case. I then take the back cover off the lock and look at the gate position. Mosler uses a couple



6. Combo cover showing wheel pack, alignment marks, and thermal relock pin.

pairs of marks on the cover of the lock next to the wheels. There are two small parallel lines and two raised dots embossed into the cover. The two parallel lines are the position for the gates to be in to insert a change key. This is a hand change lock so these two parallel lines are meaningless.

The two raised dots are the position that the gates in the wheels must be in before the lock

will open. It is hard to see in photograph 6, but they are there. I dialed all wheels to 45 and the last number on the hand change wheel was set at 45. I did not care about the first two wheels at this time. Naturally the gate did not

come close to the two dots. After making the necessary wheel adjustments and reinstalling the cover again I dialed the lock and it opened perfectly. I then tried to lock the lock by turning the dial left and scramble the wheels. It would not turn to the locked position. I had inadvertently created what is called a lock-in. I had placed the last number of the combination too close to the drop-in position.

After eight other safes, two of which I had to open, I was not in a great mood to be spending much time changing the combination on this unit. I took everything apart again and decided to try and pull the spline key again with my large puller. After a couple of hard whacks with the puller, the dial popped off the front of the safe. The spline key did not move a whit, but the dial was off. This time I attached the dial 50 numbers off from where it should have been attached. There would be no more lock-ins.

After beating the dial and drive cam together, I again had to figure the offset for the combination, adjust it, and then change all three hand change wheels properly to get the master combination to work on the lock. This time it worked. It took 45 minutes to open the safe and over 1 hour to repair and change the combination. I was frustrated, but finally happy to get the job done.

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Dortronics Continues Sales Network Expansion

Dortronics Systems, Inc. has announced the appointments of RD Kelly Sales & Z Marketing to the company's continually expanding national sales network. The appointments are effective immediately. The announcement was made from the company's headquarters in Sag Harbor, NY by Bryan Sanderford, National Sales Manager, Dortronics Systems, Inc.

R D Kelley Sales will be responsible for sales of Dortronics products in the Southern California Territory. They can be contacted at the following: R D Kelley Sales, Hermosa Beach, CA; Phone: 310-318-8815; Fax: 310-318-9643.

Z Marketing will be responsible for sales of Dortronics products in the New England Territory. They can be contacted at any of the four following locations: Z Marketing, Stratford, CT; Phone: 203-378-0805; Fax: 203-378-1065. Gansevoort, NY; Phone: 518-584-8552; Fax: 518-581-5957. Shirley, MA; Phone: 978-425-0062; Fax: 978-425-0063. East Hartford, CT; Phone: 860-569-0121; Fax: 860-568-5935.

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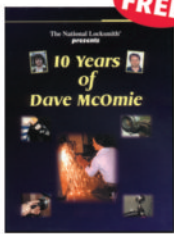
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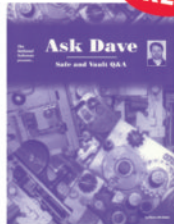
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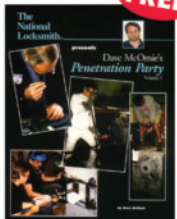
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Randy Mize

PART 2

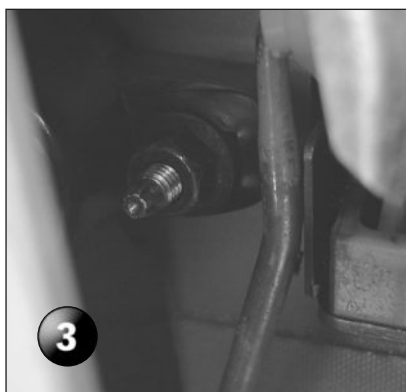
In this installment we conclude servicing the door lock, trunk lock and glove box lock.



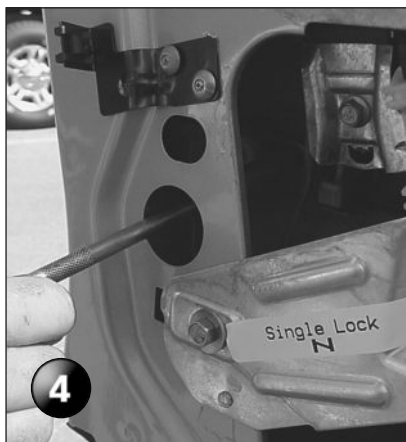
A black vapor barrier is fastened to the door.



Pull down the corner of the barrier, being careful not to tear it. The door lock is now accessible.



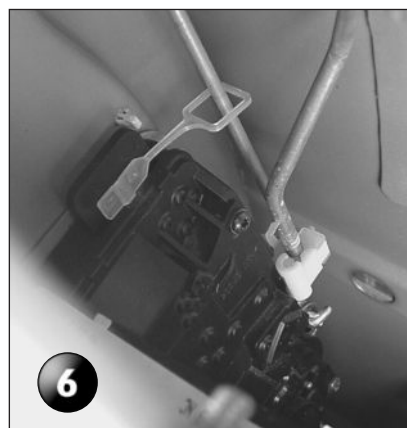
Viewing inside the door, a black plastic shroud covers the door lock and door lock linkage.



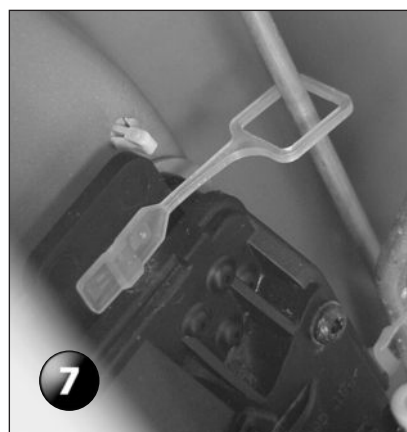
Use a 12mm socket to remove the upper nut holding the shroud to the back of the door lock.



There is no need to completely remove the shroud. With the nut removed, the shroud can be moved out of the way of the lock.



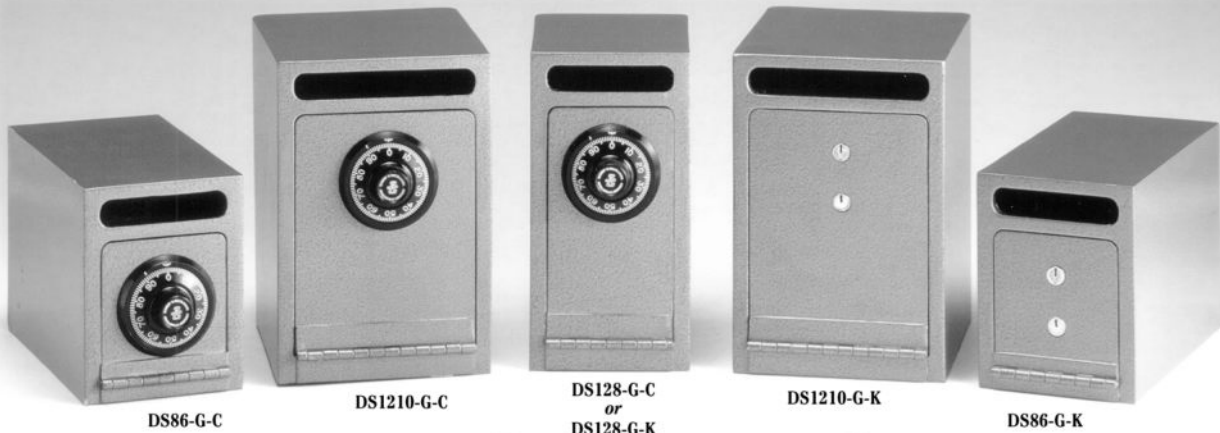
With the shroud removed, the latch and lock rods are easily visible.



A small white, nylon retaining strap is seen around the outside latch release rod. If removing the entire lock handle, be careful not to damage this part, and when replacing the handle, make sure to pass the latch rod back through the strap.

Continued on page 88

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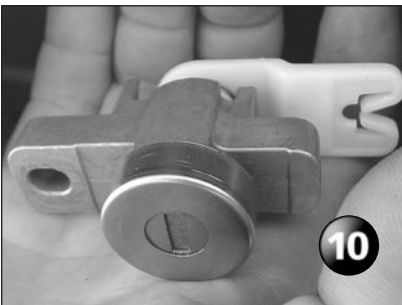
Circle 317 on Rapid Reply



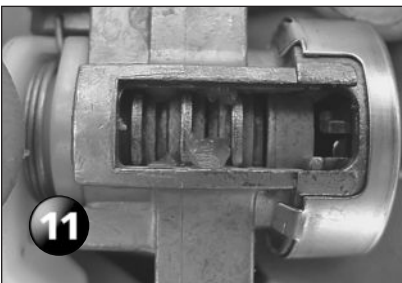
With the shroud removed, the lock is easily accessed. Another 12mm bolt holds the lock to the handle. Use a socket to remove the nut.



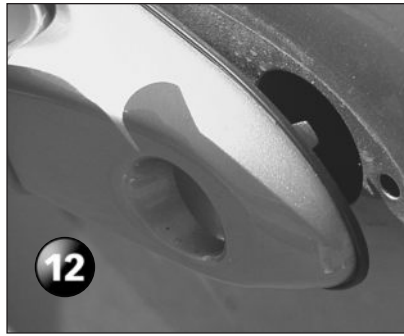
Pull the lock out of the handle and gently slide the pawl off of the lock rod.



The lock is now easily serviced.



All the tumblers can be seen through the weep hole on the bottom of the lock.



The lock also serves to hold the front portion of the outside handle to the door.

Trunk Lock



The trunk or deck lock on the 2002 LS is fairly simple to remove and service.



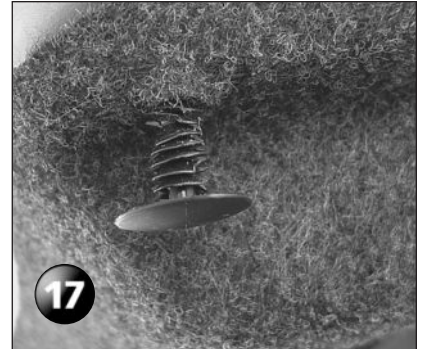
Unlike many Ford vehicles, the deck lock, although part of the deck lid, is not hidden behind trim or light panel.



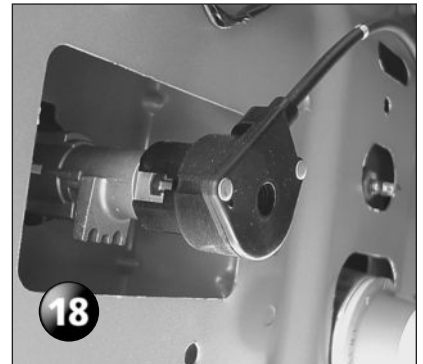
Hitting the trunk release button found on the instrument panel near the driver's left knee the door easily opens the trunk.



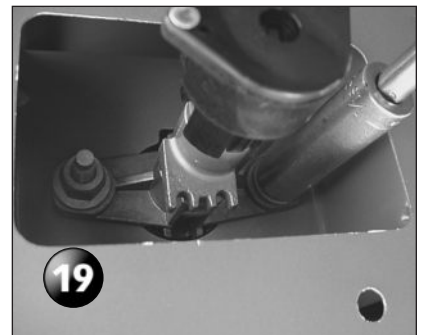
With the deck lid open, carefully pull down the inside felt trim panel.



The panel is held on using several plastic trim retainers.



With the trim removed, the lock is easy to access. Worth noting is that the lock releases the deck latch via cable and not the typical lock rod or shaft.



Two 12mm nuts hold the lock to the deck lid.

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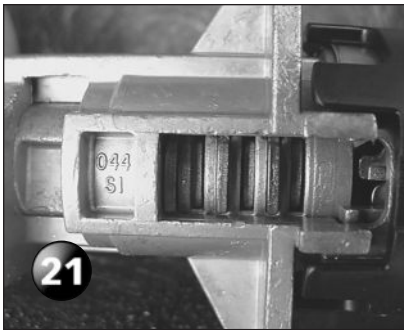
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Circle 332 on Rapid Reply



Use a socket to remove the nuts and then the lock.



Like the door lock, the tumblers within the lock can be seen through the weep hole on the bottom of the lock.

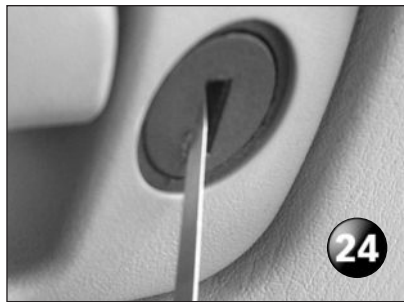
Glove Box Lock



The LS uses a paddle handle release glove box, common on many of today's cars.



And although not often necessary, glove box plug removal can be accomplished without removing the entire latch.



To remove, first pick the lock to the LOCK position.



Next, insert a hook pick and depress the first tumbler, a retainer, to release the plug.



With the retainer depressed, pull the plug out the front.



The glove box lock has five tumblers, only four of which are operated by the key.



The first tumbler is actually the retainer.

Key Blanks

STRATTEC: 599902
Lockmasters: LKM74PT
Iico: H74PT
Jet: H74PHT

Locks

Ignition: STRATTEC - 703596
Door: STRATTEC - 706367
Deck: STRATTEC - 706365
Glove Box: STRATTEC - 706366

Service Kits

STRATTEC - 703373
BWD - SK5011

Code Specifications

Code Series: 0001X-1706X
HPC: Code Card - CX101
Cutter - CW1011

Stop -

A-1 Pack-A-Punch: Kit - PAK-F3
Punch - 90T

Curtis: Cam - FORD-5

Carriage - FORD-5

Framon: First Cut - .405

Space Block - #3

Stop - Place spacing clip on left side of vise and slide key in from right.

Spacing & Depth

No.	Space	Framon Spacing	Depth
1	.845	.405	.354
2	.753	.497	.329
3	.661	.589	.304
4	.569	.681	.279
5	.477	.774	.254
6	.385	.866	
7	.293	.958	
8	.201	1.060	

Tumbler Positions

Position	1	2	3	4	5	6	7	8
Ignition	X	X	X	X	X	X	X	X
Door		X	X	X	X	X		
Deck			X	X	X	X	X	X
Glove Box					X	X	X	X

For more information on servicing the Lincoln LS, STRATTEC service parts or transponder equipment and supplies, contact Tom Seroogy or Randy Mize at Lockmasters Inc., (800) 654-0637 x342.



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by Ray Hearn

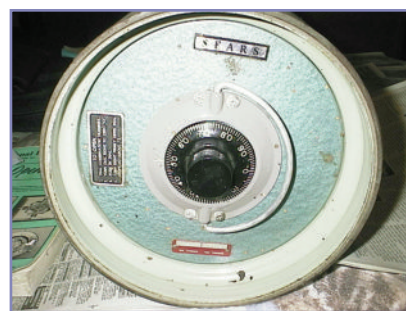
Now I think I have seen it all. When a customer calls with a Sears branded safe I usually think of the Tower or Cole file cabinet and safe combination. (*see photograph 1*) It is usually in a light metal cabinet or occasionally one of the old Diebold fire safes with the fixed handle and the 27-001213-0-00-0 S&G lock that now costs more than double of what the safe sold for. I knew I had something different when this one was described to me. By the description, this was an unmounted tubular floor safe. (*See photograph 2.*)

I think that the best floor safe opening is the unmounted safe, because there's no working among the dust bunny's, employees stepping on you, and best of all a much wider variety of ways to open the safe since all three sides are exposed.

My initial examination of this safe gave me the following clues

as to what I was to find. Blue hammertone paint, distinctive Star dial, ring and bail handle that was painted, non-removable plain black dial, and a SEARS label. I suspected from the blue paint that this safe head was old enough to be of the diecast wheel variety, but the change key mark brought out my optimistic side and I drilled the side of the casing to scope the change key hole.

My hole for the change key reading was about 5" back from the top of the casing tube. This allows for the recess of the safe head, the thickness of the head, and the depth of the back cover plus about an additional 1/2" to allow the scope to clear the back cover and have room to navigate. (*See photograph 3.*) I drilled the hole then inserted my scope and turned the head while looking for the change key hole. After a few minutes of searching in vane, I understood that there was no change key hole and that it had



1. The Sears safe.



2. This was an unmounted tubular floor safe.



3. My hole for the change key reading was about 5" back.

to be a mesh change lock with diecast wheels. This is what the blue color should have suggested, but I believed the clue of the change key mark.

At this point I had to consider my options. I could drill three holes in the bottom of the safe for a light, a long screwdriver, and an eyeball, but the three relockers did not sound like fun to deal with that way. In a shop



4. I decided to drill about 4" from the tube edge and shoot for the back cover.



5. My scope looking down the edge of the wheels.

environment I might have sawed the bottom off the safe, then reweld it back on after sticking an arm in to open it. As it was I decided to drill about 4" from the tube edge and shoot for penetrating the side of the back cover for a scope shot at the wheels. (See photograph 4.)

My hole came out in a great spot! I was looking toward the door slab (back toward the front of the safe door) with my scope looking down the edge of the wheels. (See photograph 5.) I dialed the combination and recorded the relative number where the wheels were lining up under the scope. Then I sighted the cam cutout and figured out approximately how far I was from drop-in. The cam cutout is close to, but not at the exact position of the drop-in on this lock so I had 10-15 combinations I had to try before I got it.

Writing this afterwards, I have the luxury of acting like it went perfectly, if it doesn't here's what to look for:

Have you lined the wheels up by your relative number to see if they

dial up straight edge perfect at the relative position before transferring? I am guilty of not checking this myself and it is a great way to waste hours! This applies to change key hole spotting also. Are you adding to the number when you should be subtracting? Mark a pencil line on the face of the safe showing where the drop-in should be and dial your relative numbers to it. Did you prove or disprove your method? This quick check can be a big time saver as well.

To repair this unit my customer chose the lowest cost repair option, since she did not plan on using the safe. I filled the side of the lock cover and the safes body tube with a glob of epoxy putty and shaped it after it setup rock hard. This sort of repair depends on having a rim of epoxy around each side of the repair so countersinking from each side of the hole is a nice way to do this. Due to limited space you may need to leave a button of epoxy covering the repair area from the inside instead. **TRL**

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Trans & Touchpad Retail Value \$650*



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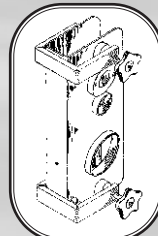
14th Prize

**Baxter #90 10-Cut
GM Try Out Key Set**



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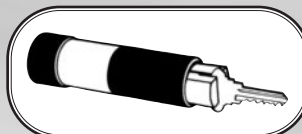
16th Prize

**A-1 Security
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17th Prize

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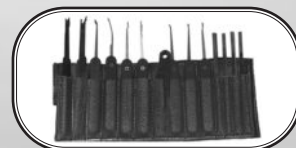
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- WINNER -

Paint Protection Tip

Here is a tip to help protect car paint when you have to gently spread a door and frame to open a car.

I know they make a plastic strip for this type of entry, but my problem was the plastic kept falling ever time I moved the tool. What I have done is cut a plastic sheet 3" by 9" and insert it into heavy Denim material (I made a pocket of the denim from some old jeans) with a magnet at the top and bottom of the plastic. The Denim material protects the car finish and the magnets hold it in place while you are working the tool into the car.

Another time saving tip is when working with ASSA systems, take a blank and cut it down to the deepest cut in all 6 positions. When you are doing a master key system, use this key to load all the bottom and top pins into the cylinder. This keeps the side bar in place and lets you load all the pins into the cylinder at one time.

*Larry Teal, CPL
New Mexico*



- WINNER -

Power Door Opener Modification

Recently I was contracted to install an LCN 4640 Series power door opener (see figure 1). Because of the door preparation, I had to use the doorframe as the mounting point, meaning that the upper mounting holes had to be used. The preparation and installation went according to the plan with no problems. Several weeks later I was called back to the building where the opener was installed. While there I thought I

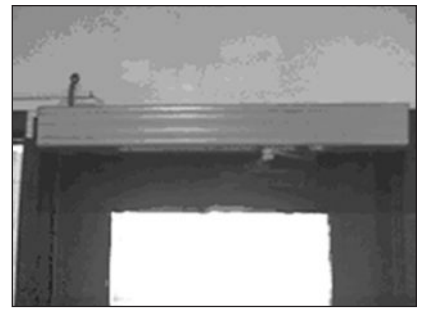


Figure 1.



Figure 2.



Figure 3.

would see how it was holding up. I found that the screws were coming loose on the closer, possibly from the torque required to open the door with all the force coming from the bottom of the opener.

I tightened the mounting screws up again, and after some thoughts as to why this occurred, I installed some corner brackets to the inside of the frame and attached, or anchored the bottom half of the opener, relieving a lot of stress to the top mounting screws (see figure 2).

This addition has been on for several weeks now, and I have not had to perform any further service to this installation (see figure 3). I think it may also be possible to use some properly modified angle iron, which is what I am going to try on the next install of this type.

*Steve Polyard
Minnesota*

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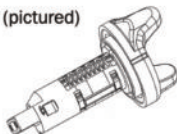
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A1 ORIGINAL KEY BLANKS



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Grand Prix '04/Pontiac logo
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 PK3+ X'ponder/On-Board
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 PK3+ X'ponder/On-Board
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- WINNER -

**1998-2003 Malibu
Ignition Quick Fix**

I have read the procedure from GM that tells you to remove the radio and ignition housing in order to remove the lock. This procedure is OK if you have a *working* key with the intent to rekey the car. If you don't have a key because the key has been cut wrong or is broken, you will have to drill the housing anyway. This is where I think we can save everyone some time.

My company has serviced several of these and I think we have a better and less time consuming procedure.

To extract the ignition, all that is needed is an ice pick style tool, cordless drill and $\frac{5}{32}$ " drill bit. In some cases you will have to remove the radio trim or the ring cover for the ignition. At this point you should see the front of the housing. Find the square recess in housing at bottom right and drill a $\frac{5}{32}$ " hole in the pot metal just above the square recess until you hit the retainer spring.

Don't be afraid of breaking the retainer spring, you want to break the spring free of the mounting stamp. It will be necessary to make the hole bigger than $\frac{5}{32}$ " to remove the retainer spring. Now use your ice pick or a pair of needle nosed pliers and pull out the retainer spring. At this time the retainer itself should fall out, if not, rap the housing lightly till it falls. In my experience the retainer will fall just in front of the gas peddle. The lock is now free to remove.

There you have it, 2-hour job in 30 minutes!

*Jamey Bullard
Arizona*



- WINNER -

Trip Hazard Eliminator

I have found when working in malls or other crowded areas, that I have to watch that passers-by do not trip on my tool boxes or tools.

It does not seem to matter what precautions I take, someone almost always walks into things.

Solution: I bought a flash light with a red light on the back that can be set to blinking. Now when working in busy areas I set the light out where people can easily see it and avoid the area in which I am working.

*Bob Sloan
Canada*

Editor's Note: Bob, good idea! With liability litigation going wild, it would pay for all of us to be more careful when it comes to where we lay our tools and equipment. In my personal experience, we have had to barricade certain areas to keep folks from getting in our way and from getting hurt by stepping on something and falling down. Also, keep this in mind: It is an irrefutable Law of Nature that people with no business in your work area are going to try to occupy that space anyway, or try to use the door your working on, even if the other door is propped wide open!



SARGENT AND GREENLEAF

A lock on security.

- WINNER -

Door Guard Opening

I have found that with the three items included in *figure 4*, I could open doors in a lock out situation in two different applications.

My first was with a hotel that had a lockout problem. I used the air bag against the frame to provide scratch protection.



Figure 4.

Then I placed the Mag light between the door lever and the frame and used a prying action with the door slightly open. This will move the ball of the door guard away from the swing arm allowing the door to open. Be careful on how much force you use while pushing on the door or you'll find yourself flying into the room.

The second time was in an apartment. The first tip didn't work. I had my Z-Tool kit with me and decided to try the wing window tool. Open the door slightly I placed the wing window tool just below the door guard. Then I closed the door and slid the air bag between the door and frame. Then I pumped up the air bag enough to move the wing window tool freely then flipped the tool so that I pushed the door guard away from the locked position. Open door and remove tools.

*Pete Rossetti
British Columbia*



- WINNER -

Padlock Impressioning Trick

There are days when I can impression just about any lock that comes my way, and there are days

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that I don't think I could impression a lock that was zero bitted. I impression padlocks for practice on days that I have a bit of free time, or I buy a few without keys at a flea market for little or nothing and sell them for half price to the bargain hunters. On a service call or for walk-ins, I just hate to tell a customer that it's not cost effective to fit a key to a padlock that doesn't have a code on it, or to just throw away an otherwise perfectly good lock. It is cost effective if you can impression it in a few minutes and only use a blank or two.

The other day a friend brought me two Master #3 padlocks to make keys for. In the process I got heavy handed and broke a couple blanks at first. I had pins marking below the #6 depth when frustration set in and I thought there has to be a better way.

For the master padlock using the 1092 (M1), cut a set of gauge keys to the 1-6 depths along the entire blade of the blank. Bump or pick the padlock open and stick a bolt in the shackle hole to keep the lock cylinder from returning to the locked position. Insert the gauge keys one at a time to see what depths pass and what depths are blocked by the pins. Results are going to vary depending upon the cylinder biting; however the minimum information that you will gain is:

1. The deepest cut that is in the cylinder.

2. The depth of the number one pin.

You can even better your odds if you can sight read the unknown pins. Remember, you

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Master Padlock #3

SPACE		1	2	3	4
D	1				
E	2	B			
P	3	P	P	B	
T	4	P	P	P	B
H	5	P	P	P	P
	6				

P indicates passed

B indicates blocked

Figure 5.

already know what pin 1 is from gauging, so you have a reference.

If you look at *figure 5*, you will see how I used my gauge keys to determine the cut key. A "B", means the key was blocked and a "P" means that the key "Passed". In this illustration I'm generating a key for a Master #3 padlock. In this example, the #5 gauge key passed all the pins. The #4 passed pins 1, and 2, and was

blocked by pin 4. The #3 gauge key passed pins 1 and 2 and was blocked by pin 3. And, finally, the #2 key was blocked by pin 1.

Therefore I know the following about this padlock:

- The deepest cut is a "5".
- Pin 1 has a depth value of "3".
- Pin 2 is of an unknown depth, but no deeper than a 2 cut.

Master Padlock #37

SPACE		1	2	3	4
D	1				
E	2	B			
P	3	P	P	B	
T	4	P	P	P	P
H	5				
	6				

Figure 6.

- Pin 3 is a "4" depth
- Pin 4 is a "5" depth.

I cut this key on my code machine to 3145 and then impressed the #2 chamber. It turned out that the actual cuts were: 3245.

In *figure 6*, the #4 gauge key passed all the pins. The #3 passed pins 1, 2, and was blocked by pin 3. Key #2 was blocked by pin 1.

Which means:

- The deepest cut is a #4
- The 1 pin is a "3" depth.
- Pin 3 is a "4" depth.
- Pins 2 and 4 are unknown, but pin 4 is no deeper than a "4" depth and pin 2 is no deeper than a "3".

Reminder: If using bump keys and there is a 6 or 7 pin in the cylinder, you will not be able to remove the bump key as it will trap on one of the ramps. In this case you will have to pick the lock.

I tried this method on several Master Padlocks and experienced 100% success with it.

Bob Strohecker
Missouri

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ILCO

- WINNER -

Opening Tip

When called on a lockout at a home or business, you might be surprised to find that a lot of the holes on the door jam are not drilled to the proper depth for the bolt to deadlock when thrown.

If I can see the bolt, I take an ice pick or other thin sharp tool and try to force the bolt back. It has saved me a lot of time and also the customer was happy when I drilled the hole deeper and showed them that no one would be able to open the door that easily again.

You can also move the latch bolt to open the knob lock when the strike plate is not properly installed.

*Leroy Gramza
Michigan*

KEDEX

- WINNER -

Generating Keys for the New Scooters

Making keys for scooters is usually easy to do. With all the different models now, most of the low dollar ones have a real cheap ignition switch and no other locks to deal with; but you must use caution...these ignitions are usually made of plastic and will break fairly easy if you try to impression them too hard.

They all, or most, have a retainer in the end of the plug that can be easily depressed with a hook pick and then pulled out. Find a blank that works the keyway, I have had good luck with the "YH" series of blanks for Yamaha's, and hand file the cuts. Reinstall and you're done.

*Frank Kitchen
Indiana*

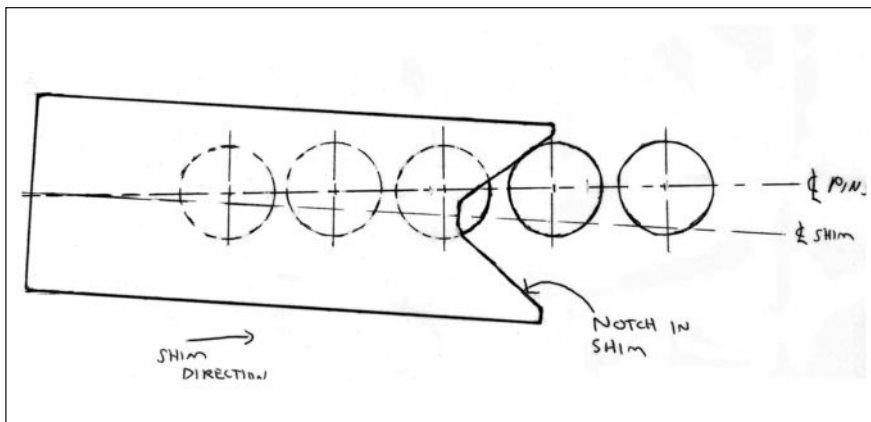


Figure 7.

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Another Shim Trick

I find that when picking cylinders with a shim, the shim will tend to wander if the cylinder is tight, or is heavily soiled and corroded. My shim tends to slip off to one side or the other of the next pin in line.

By modifying my shims as shown in figure 7, I eliminate the possibility of the shim wandering. The ramps of the "U" correct the direction of the shim as it is pushed against the next pin.

With this modification, once a pin is picked, the shim slides underneath and then heads straight to the next pin in the chamber.

*Robin McKinnon
New Mexico*

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Nursing Home Safety Tip

At a nursing home I do work for, the bathroom doors have lever sets with a privacy function. A problem can occur when a resident locks themselves in, falls, or has an emergency while in the bathroom and the staff does not have a key handy. That would mean that the door might not be able to be opened in a timely manner.

To resolve this problem, I purchased a quantity of magnetic key boxes and an equal number of keys for these privacy function locks. Since the frames of the doors are steel, I inserted one key in each box and attach the box to the very top of the frame.

Now there's a key at hand for each door and the staff has been trained to recognize the key's location, how the box works and to replace the key after each use.

Hopefully, the keys will never be needed, but they are in place in the event that an emergency occurs and the keys are needed.

*Doug Trauschke
South Carolina*

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More Secure Master Keys

Recently while at an LAOC (Locksmith Association of Connecticut) meeting, during a

discussion of master keying, I thought of a method to foil the production of a master key by the method outlined by Greg Mango in his Mango's Message column in *The National Locksmith* magazine back in March of 2003.

The production of a master key by filing one cut at a time of a copy of a pass key to find a second depth that will also turn the cylinder may be foiled by simply designing the master key system such that at least one cut on the master key and the adjacent cut on the pass key exceeds the M.A.C. (Maximum Adjacent Cut) for the lock system involved. If the master key has the deep cut, any attempt to file the pass key deep enough to match the master key cut will also file off the adjacent cut on the pass key and the cylinder will not turn. If the master key has the shallow cut, then the deep cut in the adjacent position on the pass key is too deep to allow such a shallow cut adjacent to it.

The "key-hacker" might suspect this technique was used and progress the possibilities on adjacent positions wherever there is a deep or shallow cut on the pass key. Since he can't determine which side of the deep or shallow cut to progress with that column, and there may be more than one deep or shallow cut, the possibilities become numerous. Such an attack will be to sophisticated for most "key-hackers" and will probably require considerable locksmith skills. The legitimate locksmith will have access to the system and may find it easier to use other methods to produce a master key.

*Russell Jack
Connecticut*

Comments from Don O'Shall: *Wow! This one took a bit of research to determine. It is a great tip, and is partially*

correct. On paper this works flawlessly, but the MACS violation is not as big a boogiem as we locksmiths always thought it was. The calculations for MACS violations have always been made with a theoretical chisel point so that it could use standard mathematical triangulation. However, in the real world there is a flat on the bottom of the cutting blade, which alters the math somewhat. The result, in real world terms, is that a single sided MACS violation will in many cases permit the side of the slope of the pin to sit at the correct height on the slope of the cut. It does not work properly, but works well enough for a hacker/thief to determine that the cut is the one he or she is looking for. When either a double MACS violation occurs or the MACS violation occurs at the tip of the key with the shallowest cut at the very tip, the technique described here works perfectly. I tried this technique with four manufacturers products with varying numbering systems and MACS values. The results described herein were the same for all of them.

LAOGARD
- WINNER -

Secure Coded Combination Generator Tip

Here's what I consider a very slick way of finding secure and yet readily available safe and or key biting combinations. Depending on where you live, you have anywhere from a few thousand to couple million possibilities open to you.

The numbers are based on the population of your area, are readily available to you and once used from a very public source, cannot be found again unless the person looking knows exactly where the numbers were taken from.

Safe combinations generally (for a three-wheel lock) consist of six numbers: XX-XX-XX. Key bittings may be four, five, six or seven numbers. We'll use six for our example: X-X-X-X-X-X (You can also use this source for padlock combinations).

Okay, let's say you change the combination on a safe at a local restaurant. Rather than trying to figure out a combination in your head, grab the local telephone directory, randomly open it to any page; select any listing—and there's your new combination!

Assume the number you randomly selected is: 374-2698. Your new safe combination could be: 89-26-47 or any combination of the base number from the directory. Such as: 37-49-28. Regardless, the number is secure unless someone saw the exact listing you chose the number from.

If you're looking for a key bitting (we'll use the same random numbers), try this:

3-7-4-2-6-9. See how easy it is?

Your local telephone directory has hundreds of listings per page, hundreds of pages per book and can be an unending code generator for you. One that no one can compromise unless they saw the exact page and listing that you used to pull the numbers from.

*Steve Bright
North Carolina*

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**John
Blankenship**

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3. The bottom of the panel is secured by a notch on the panel that clips over a rubber grommet. Pull out on the bottom of the panel to free it from the grommet. Then pull out on the upper right of the panel to pull a pop-tab out of its rubber grommet.

Continued on page 108

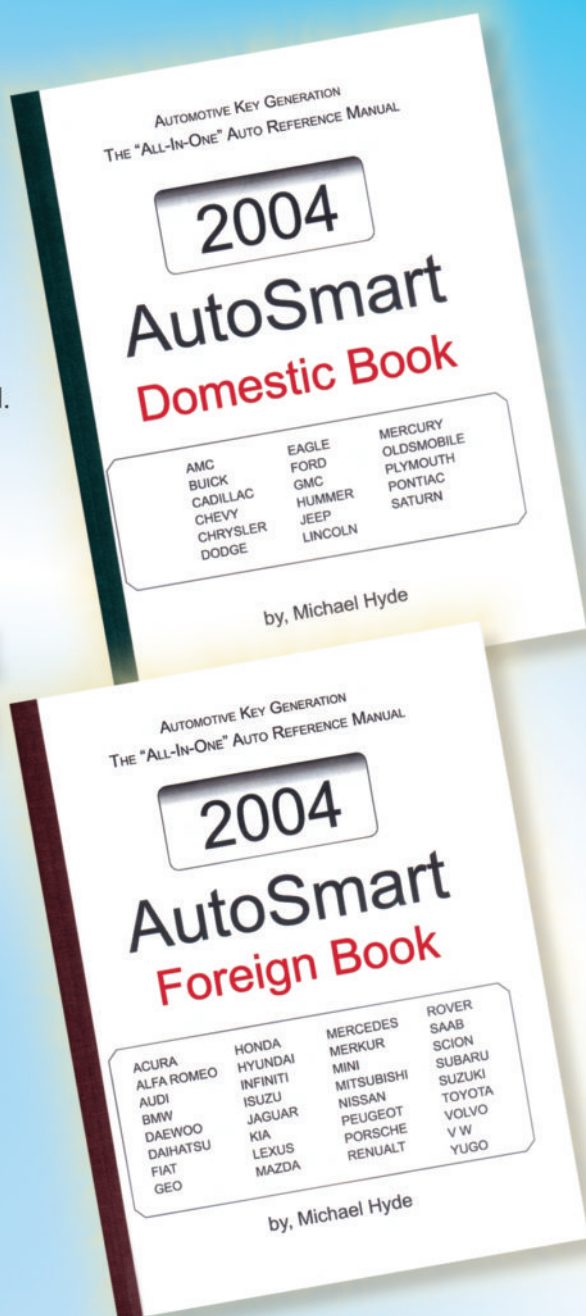
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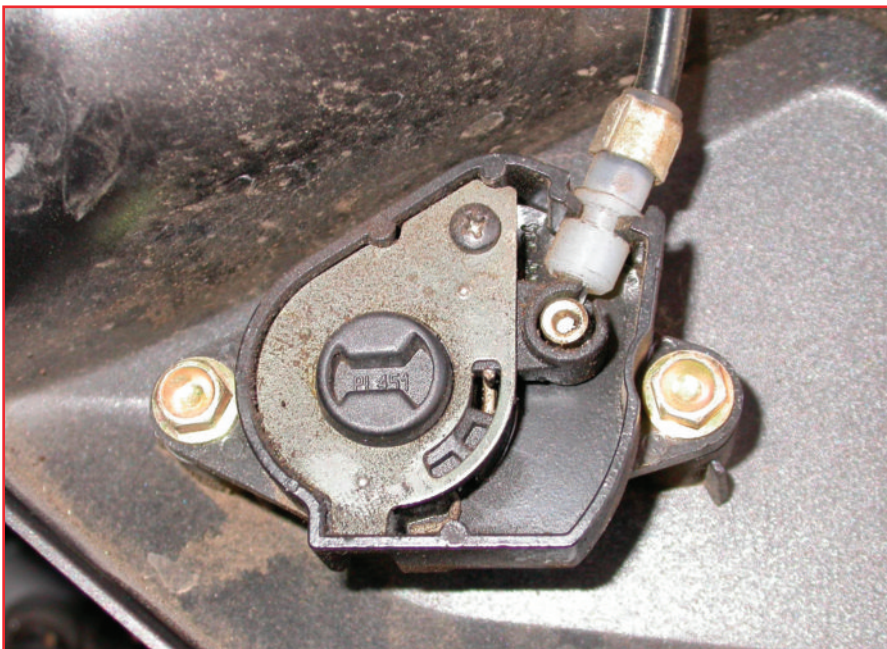
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708752 – EXPERT PACK

2	692064	GM R/W Transponder - Small head 88 groove (B97PT)
2	692065	GM R/W Transponder - Large head 75 groove (B99PT)
2	692138	GM R/W Transponder - Large head 93 groove
2	692057	Honda R/W Transponder (HD106PT)
1	692080	Mazda R/W Transponder (MAZ24RT5)
1	692082	Honda R/W Transponder - High Security Blade (H001T5)



FREE MAG-LITE

WITH PRO PACK!

Pack includes variety of domestic and import molded-head non-transponder keys!

(Part # 708753)

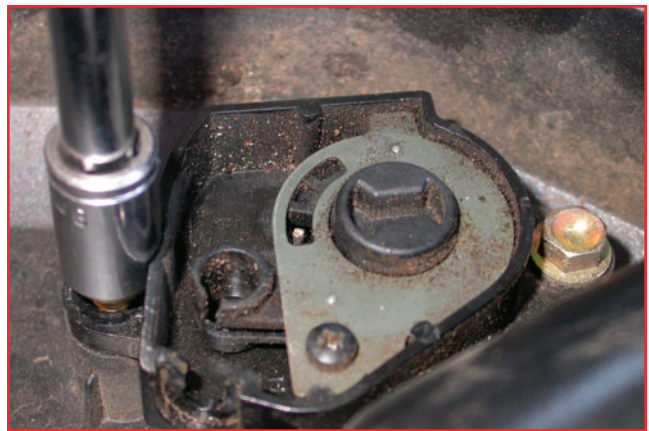
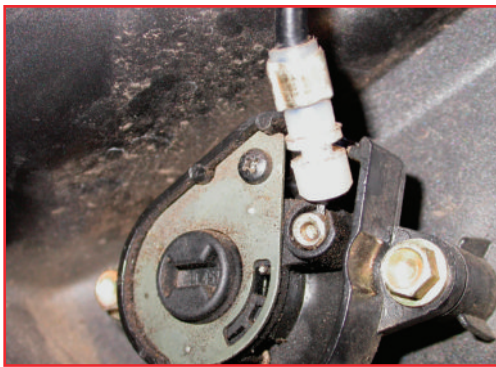
708753 – PRO PACK

10	692075	Saturn molded head key (BB88P)
10	692076	Saturn molded head key (B96P)
10	692056	Honda molded head key (HD103P)
10	692059	Nissan molded head key (DA31P)
10	692077	Toyota molded head key (TR33P)
10	692063	Toyota molded head key (TR47P)
10	692066	Honda molded head key (HD90P)
10	692094	Nissan molded head key (DA34P)
10	692067	Hyundai molded head key (HY12P)
10	692068	Hyundai molded head key (HY14P)
10	692069	Mazda molded head key (MZ27P)
10	692070	Mazda molded head key (MZ31P)
10	692071	Mitsubishi molded head key (MIT3)
10	692073	Nissan molded head key (DA30P)
10	692078	Toyota molded head key (TR40P)
10	692346	Chrysler molded head - Oval Head 84 groove
10	692347	Chrysler molded head - T-Style Head 78 groove
10	692350	Chrysler molded head - T-Style Head 73 groove
10	692351	Chrysler molded head - T-Style Head 84 groove

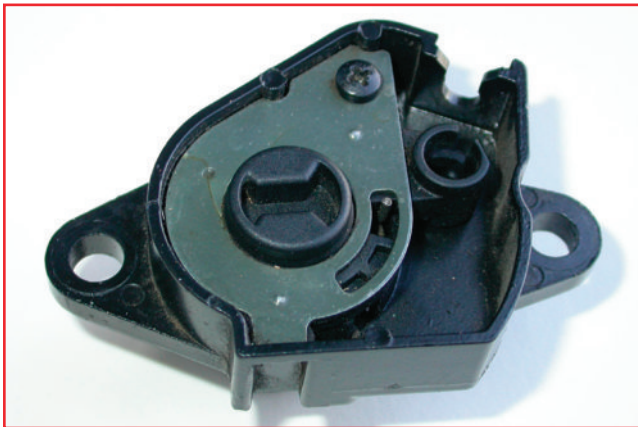
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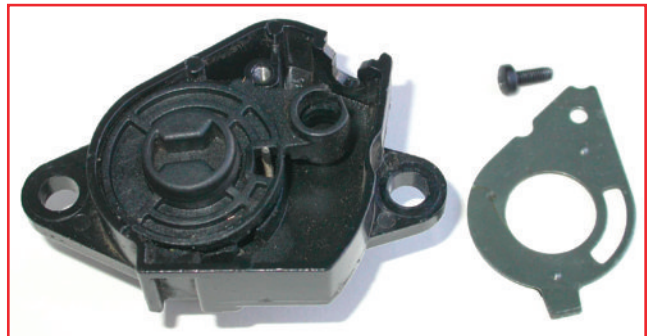
8. Pop the end of the cable housing out of the notch in the housing by forcing it toward the rear of the lock. Then pull the cable out through the slot in the tailpiece. Now you can take the panel to a workbench.



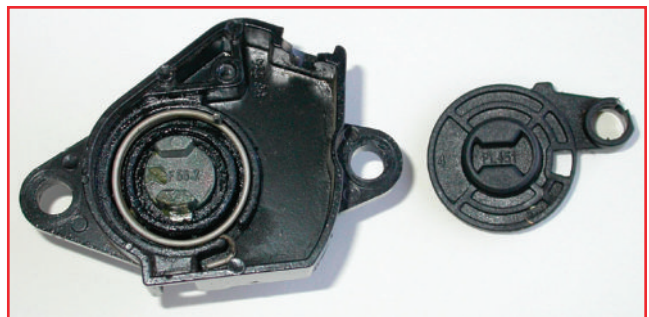
9. Use an 8mm socket to remove the two bolts that secure the lock to the panel.



10. Remove the small Phillips screw that holds the cover on.



11. With the screw removed, you need to pull the tab on the other end of the cover out of its slot in the housing so you can remove it. Pay attention to how the return spring fits into the tailpiece and pull it off.



12. Pay attention to how the spring fits into the housing and remove it. When I reassembled it, I used a dental hook pick to pull the end of the return spring around until it could be inserted into the window in the tailpiece.



13. The retainer can be seen of the bottom side of the plug. Depress it and push the plug out the front. You do not have to be

concerned with the wafers springing or falling out.

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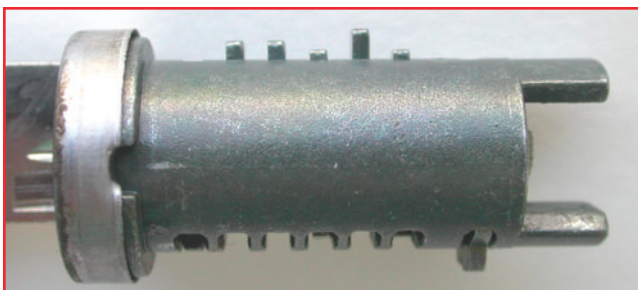
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14. A Silca ZD24RDP blank inserted into the plug shows that the cuts are 133242, which is code 8303.



15. The original key is on top and a code cut ZD24RDP with cuts of 133242 turns all four locks on the bike. The Silca ZD16RP, ZD22RBP, ZD23RCP & ZD24RDP blanks will all work the locks on this bike because all of the locks have the off-center keyway.



16. Insert the plug so the retainer aligns with the slot in the 4 o'clock position. A ramp will depress the retainer and when the plug is fully inserted, turn it so the retainer and wafers align with the locking slot in the 6 o'clock position.

In the next installment we conclude with the gas cap lock and ignition lock.

TNL

The National Locksmith® presents a guide to cylindrical lock servicing for the Professional Locksmith . . .

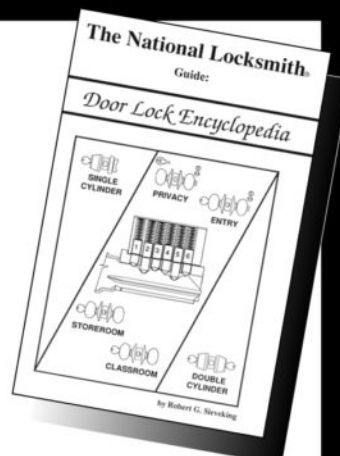
The ability to remove a lock from a door, disassemble the mechanism, and remove the lock cylinder for service is not always a simple straightforward task. The **Door Lock Encyclopedia** is a clear and concise illustrated service manual illustrating service instructions for standard cylindrical locksets including American Eagle, Arrow, Corbin, Dexter, Harlock, Kwikset, Lori, Master, National Lock/Amerock, Sargent, Schlage, Weiser and Yale. It will equip you with specific knowledge and a few tricks to make servicing understandable, easy to master and **profitable**.

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THRU THE KEYHOLE

A Peek at Movers & Shakers in the Industry

ATTENTION MANUFACTURERS AND DISTRIBUTORS:

Would you like your company and products to be profiled in *Thru The Keyhole*? Please call Editor, Greg Mango, at (630) 837-2044.

Steck Manufacturing Company

by Raymond Steck, President of Steck Manufacturing Company, Inc.

When it comes to car opening tools, you often see the name Steck, and may be interested in learning some of the history behind this name.

The company was started by George Steck, as Steck's Paint & Body Shop right after World War II. George's interest in car unlocking tools developed when a customer parked his car in front of the overhead door early one morning, but forgot to drop the keys in the mail slot. When George and his employees arrived at work, there sat the customer's car with no way to move it. They also couldn't move any other cars in or out of the building. Three bodymen and a painter all stood idle while George called the customer's home, found out where he worked, called the man at work and went to retrieve the keys.

After that experience, George started looking at the lock mechanism in the door of every car they tore down for repair. He eventually designed and marketed a tool for unlocking car doors. George's first tool was designed to slide under the vent wing of the door (remember vent wings?) and it curved around to reach and lift the lock knob on the window frame.

When vent wings started to disappear in the late 1960's,



George invented another clever tool that became popularly known as the "Slim Jim." Steck never used the "Slim Jim" name for their tool, but Steck's design was widely copied, both here and abroad. George was granted a patent, Design Patent Number D220, 240, for his design. It is still a very popular tool even though it is not nearly as effective on today's car doors.

While Steck has designed numerous lockout tools to actuate the linkage inside the door cavity, Steck's latest and most popular lockout tool is by far the easiest to use. The BigEasy uses a plastic wedge and/or an inflatable wedge to spread the upper rear corner of the car door and then reaches in with the 54" long BigEasy tool to push the lock slide, the electric lock button, or the window button to open the car. This method is

easy, safe, and eliminates the problems of damage to wiring and linkage inside of the door. You can see what you are doing the whole time.

You may find it interesting to note that Steck's inflatable wedge comes from a company in Europe who originally designed it for use in leveling windows during installation in homes and buildings. The concept of the BigEasy tool itself came from an inventor in Cheyenne, Wyoming, named Frank Child. Frank is just one of the many inventors who have sent tool ideas to Steck and receives royalties in return.

Unfortunately, George Steck passed away in 1995, at age 86. His family still owns and operates the company he left behind with two of his sons, Ray and Larry Steck, at the helm. **TNI**

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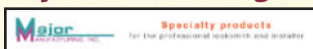
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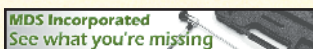
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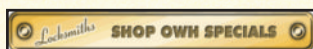
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TEST DRIVE

Hit-111

by Major Manufacturing



THE NEED:

I am sure everyone reading this has had a call to change a knob lock to a lever lock. If you haven't, trust me, you will. Lever locks are going to replace knobs completely someday. Why? Because of ADA and the federal government requirements. We may not like it, but we have to accept it.

How does this present a need for a new tool? Most lever locks on the market today have posts that pass through the door above and below the cylindrical lock hole. These may be at 2 and 8 o'clock or 10 and 4 o'clock, but they will have to be drilled to install the lock. Several methods are out there to locate these holes, and some even work well, but they take time and are not efficient. Some of these include measuring the location, using paper templates and the jig provided by the manufacturer of certain locks.

The methods described above have serious limitations including inaccurate holes, one time usage and one brand application. Wouldn't it be wonderful if we had a tool that would be versatile, accurate and fast?

THE ANSWER:

Major Manufacturing has just such a tool, and it works. It is the HIT-111. Major Manufacturing has a reputation for inventing quality tools that do the job they are intended to do, and the HIT-111 is no exception.

The body of the HIT-111 is manufactured from 6061 T6 aircraft grade aluminum for maximum life with minimum weight, and the bushings are made from quality, hardened steel. If, by some strange sequence of events, you damage the bushings, they are replaceable. It is recommended that you return the jig to Major Manufacturing for this process since the bushings are pressed into the body with a five-ton press, and the original accuracy is guaranteed that way.

USING THE TOOL:

The general instructions are as follows. Remove the Allen bolt and back plate (Allen wrench provided). Place the HIT-111 drill guide on the door with the aligning washers in the 2 1/8" crossbore. The HIT-111 should be placed on the door so the writing on the front plate is in the right position. Replace the backplate and tighten the Allen bolt until snug. Do not over tighten. All through bolts may be drilled in one operation through the door; it is not necessary to drill from both sides.

TOOL APPLICATIONS:

This is truly a versatile tool. Twenty-one different locksets are listed on their application chart and I am sure more can be done with the HIT-111. Instructions are given for placing the holes at 6 and 12 o'clock for such locks as Schlage Rhodes, PDQ, Yale and Marks, using a 5/16" hole and it even gives the location of the anchor plate lugs if they need to be drilled.

IN SUMMARY:

DESCRIPTION: Thru-hole jig for retrofitting lever locks from cylindrical locks.

PRICE: \$170.00

COMMENTS: Accommodates 21 different thru-hole offsets and the accuracy is right on the money.

TEST DRIVE RESULTS: A quality product that will make lever lock retrofits and installations much easier. It's very easy to use and a real time saver.

Locks using the 2 and 8 o'clock location include ASSA, Arrow, and Sargent. These locks use a 3/8" hole for the posts so the bushing allows for a larger bit for them. Again, the anchor plate hole location is included.

Older Corbin-Russwin locksets use a 10 and 4 o'clock location for their holes and the HIT-111 has them covered as well. A 7/16" hole is required for those locks and their bushings accept that size.

Other brands covered by the HIT-11 include Lori, Medeco Embassy 17, NT Falcon and Omnilock. As you can see, the tool can do a wide variety of locks.

COMMENTS:

Without question, this is a tool that anyone that does any lever lock retrofitting should consider for his or her toolbox. The time saved and the accuracy of the holes will make the installation a breeze, and the job will be more professionally done. Take a good hard look at the HIT-111, you won't be sorry.

PRICING:

Suggested retail price for the HIT 111 is \$166.50 and it is worth that price many times over.

For more information contact:

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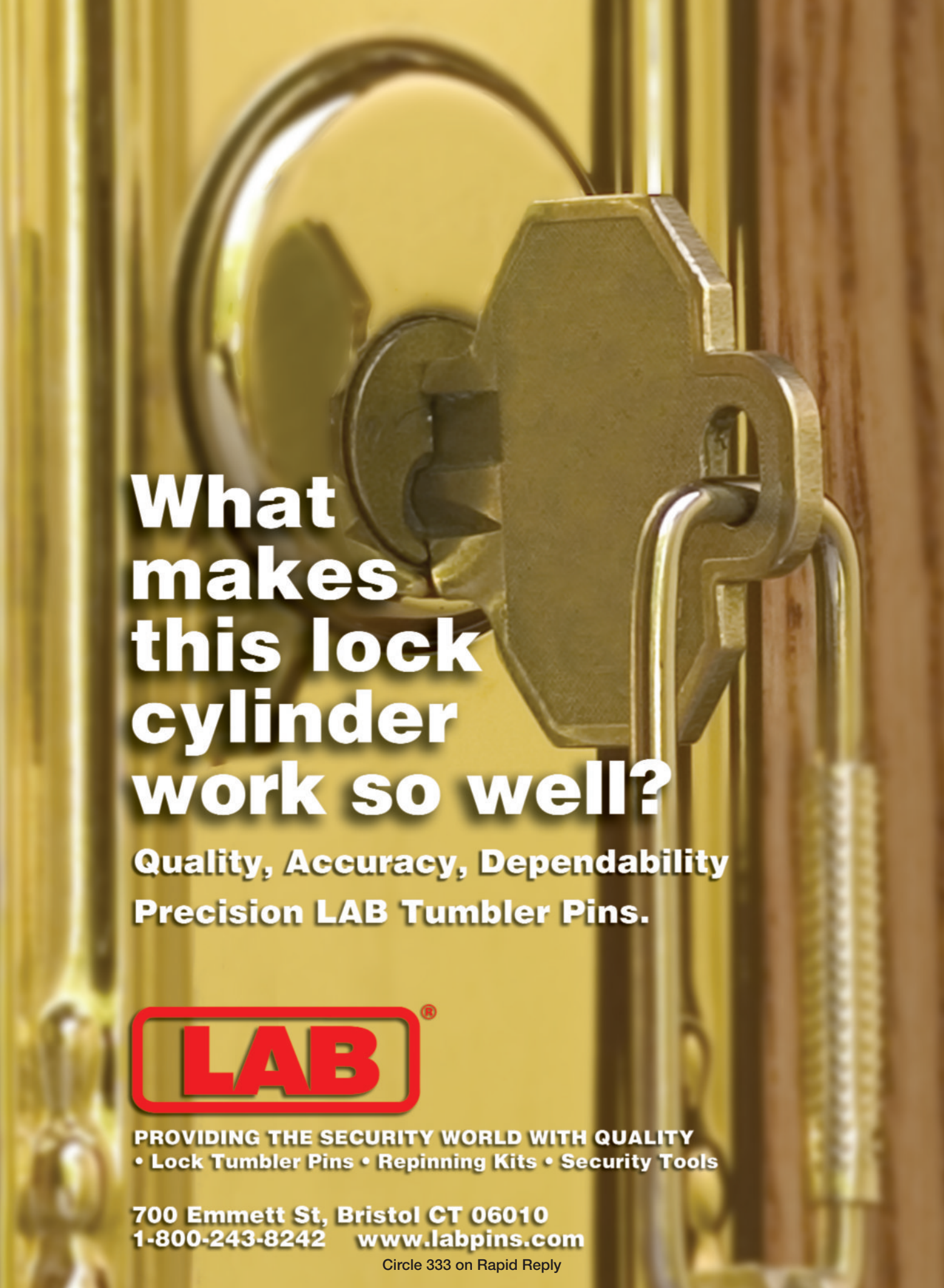
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